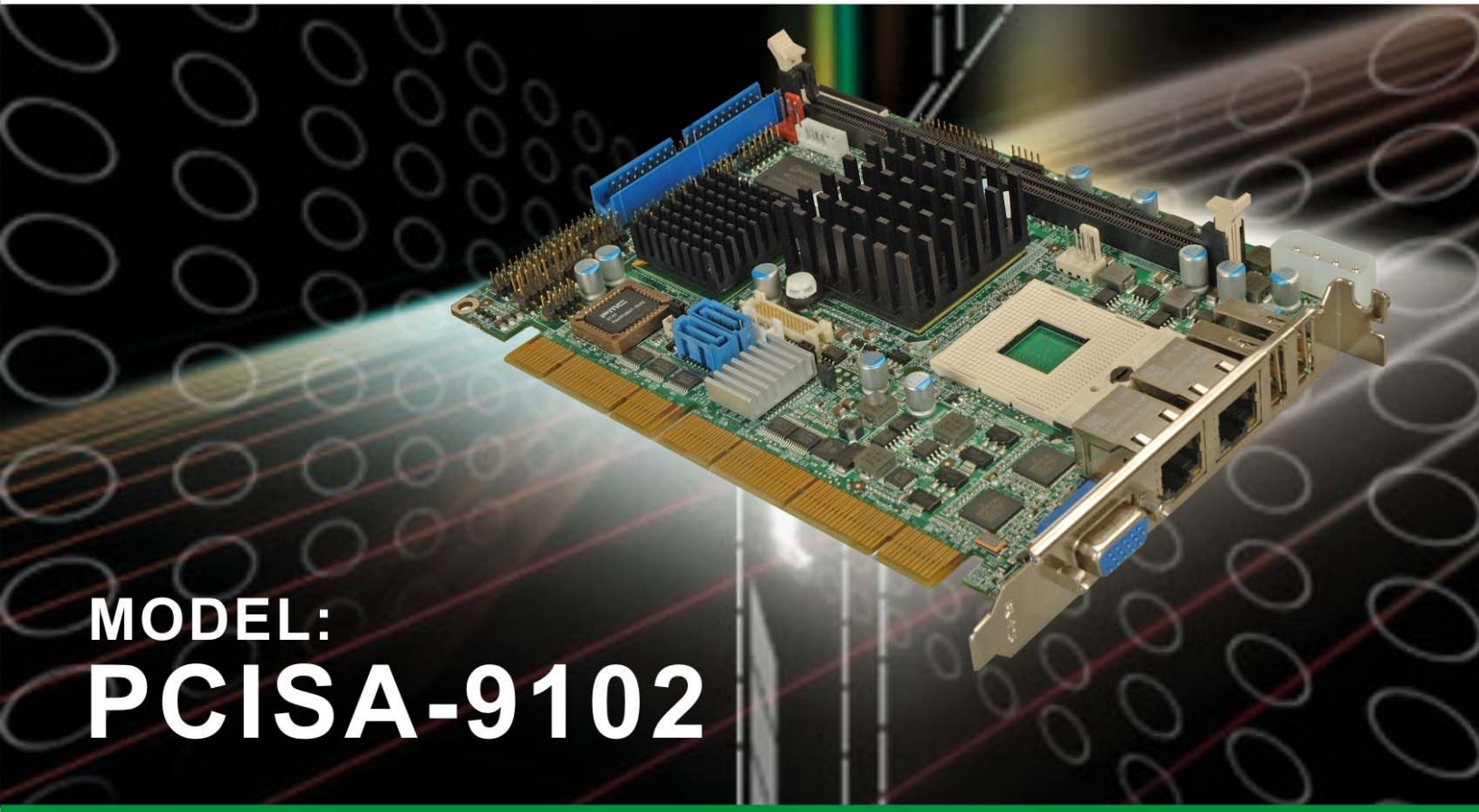
IEI Technology Corp.



MODEL:

# PCISA-9102

## Half-Size PCISA Intel® Pentium® M/Celeron® M CPU Card with VGA, LVDS, SDVO, Dual PCIe GbE, FDD, Two RS-232, Six USB Ports, Two SATA Ports and CF Type I/II Slot

# User Manual

Rev. 1.00 July 2008

RoHS Lead Free

# Revision

| Date | Version | Changes |
|---|---|---|
| 2008-07 | 1.00 | Initial Release |

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# Manual Conventions

**WARNING!**

Warnings appear where overlooked details may cause damage to the equipment or result in personal injury. Warnings should be taken seriously. Warnings are easy to recognize. The word “warning” is written as “**WARNING**,” both capitalized and bold and is followed by text. The text is the warning message. A warning message is shown below:

**WARNING:**

This is an example of a warning message. Failure to adhere to warning messages may result in permanent damage to the PCISA-9102 or personal injury to the user. Please take warning messages seriously.

**CAUTION!**

Cautionary messages should also be heeded to help reduce the chance of losing data or damaging the PCISA-9102. Cautions are easy to recognize. The word “caution” is written as “**CAUTION**,” both capitalized and bold and is followed. The italicized text is the cautionary message. A caution message is shown below:

**CAUTION:**

This is an example of a caution message. Failure to adhere to cautions messages may result in permanent damage to the PCISA-9102. Please take caution messages seriously.

**NOTE:**

These messages inform the reader of essential but non-critical information. These messages should be read carefully as any directions or instructions contained therein can help avoid making mistakes. Notes are easy to recognize. The word “note” is written as “**NOTE**,” both capitalized and bold and is followed by text. The text is the cautionary message. A note message is shown below:

**NOTE:**

This is an example of a note message. Notes should always be read. Notes contain critical information about the PCISA-9102. Please take note messages seriously.

# Packing List

**NOTE:**

If any of the components listed in the checklist below are missing, please do not proceed with the installation. Contact the IEI reseller or vendor you purchased the PCISA-9102 from or contact an IEI sales representative directly. To contact an IEI sales representative, please send an email to sales@iei.com.tw.

The items listed below should all be included in the PCISA-9102 package.

- 1 x PCISA-9102 CPU card
- 1 x IDE flat cable
- 1 x Mini jumper pack
- 1 x Parallel port and RS-232 cable
- 2 x SATA cables
- 1 x SATA power cable
- 1 x USB cable
- 1 x Utility CD
- 1 x Quick installation guide

Images of the above items are shown in **Chapter 3**.

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Chapter

1

# Introduction

## 1.1 PCISA-9102 Overview

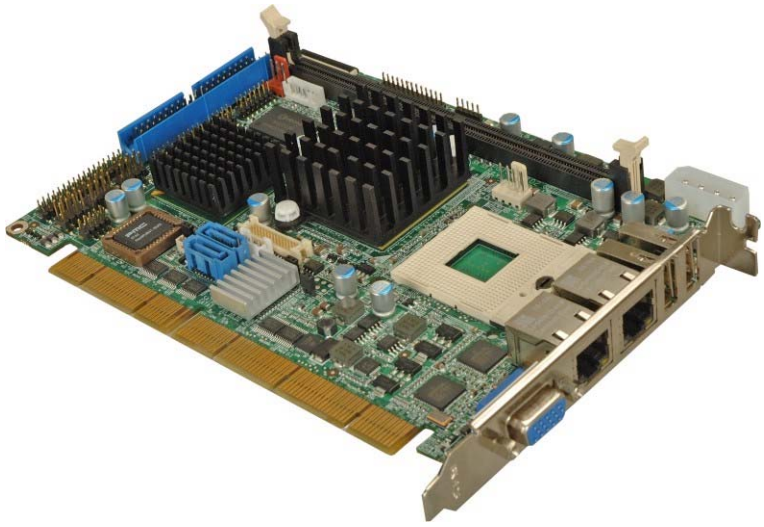


**Figure 1-1: PCISA-9102 CPU Card**

The PCISA-9102 half-size PCISA CPU card is a Socket 479 Intel® Pentium® M or Celeron® M CPU platform. The PCISA-9102 has a maximum front side bus (FSB) frequency of 400 MHz and contains one DDR2 SDRAM DIMM socket that supports up to 1 GB system memory.

The PCISA-9102 comes with a VGA interface and dual PCI Express (PCIe) Gigabit Ethernet (GbE). The PCISA-9102 supports up to two SATA hard disk drives (HDD) with maximum transfer rates of 1.5 Gb/s and up to six USB 2.0 devices.

The PCISA-9102 also has a CompactFlash® card socket for additional system storage. Two RS-232, one parallel port and one digital input/output (DIO) port offer system integrators more choices of peripheral devices for the targeted application. Multiple display (VGA, LVDS and SDVO) support also adds versatility to the system enabling system integrators and designers increased flexibility in selecting display panel options.

### 1.1.1 PCISA-9102 Features

Some of the PCISA-9102 features are listed below:

- Complies with RoHS
- Supports Socket 479 Intel® Pentium® M or Celeron® M processor
- Supports a maximum FSB speed up to 400 MHz
- Supports one 240-pin 1 GB (max.) 400 MHz DDR2 SDRAM DIMM
- Supports one CompactFlash® Type I or Type II card
- Dual PCIe GbE connectors
- Supports two SATA channels with transfer rates up to 1.5 Gb/s
- Supports six USB 2.0 devices
- Supports CRT and 24-bit dual-channel LVDS

### 1.1.2 PCISA-9102 Model Variation

There are three PCISA-9102 models. They are listed below.

| | CPU | L2 Cache | FSB |
|---|---|---|---|
| **PCISA-9102** | Socket 479 Intel® Pentium® M / Celeron® M | 2 MB (Max.) | 400 MHz |
| **PCISA-9102-1GZ** | 1.0 GHz Intel® Celeron® M | Zero cache | 400 MHz |
| **PCISA-9102-1G512** | 1.0 GHz Intel® Celeron® M | 512 KB | 400 MHz |

**Table 1-1: Model Variations**

## 1.2 PCISA-9102 Board Overview

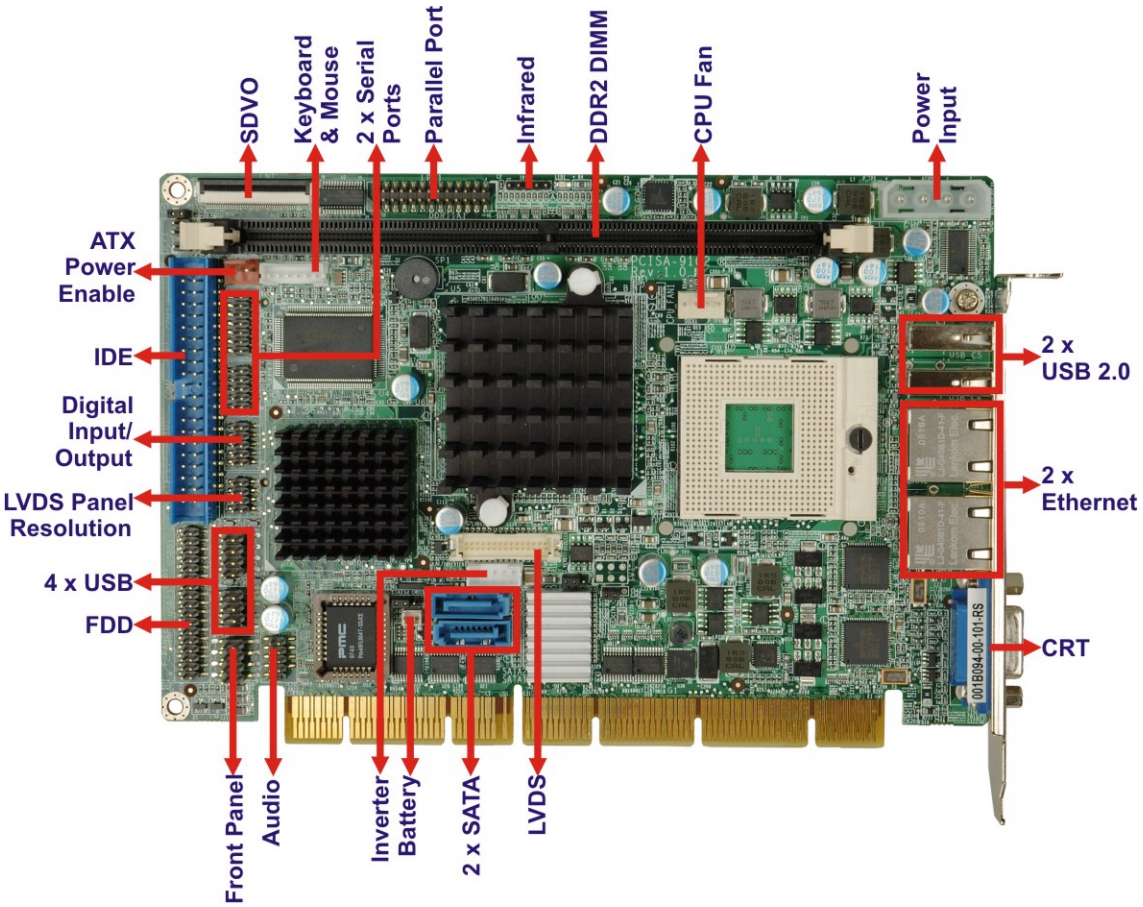



**Figure 1-2: PCISA-9102 Board Overview (Front Side)**

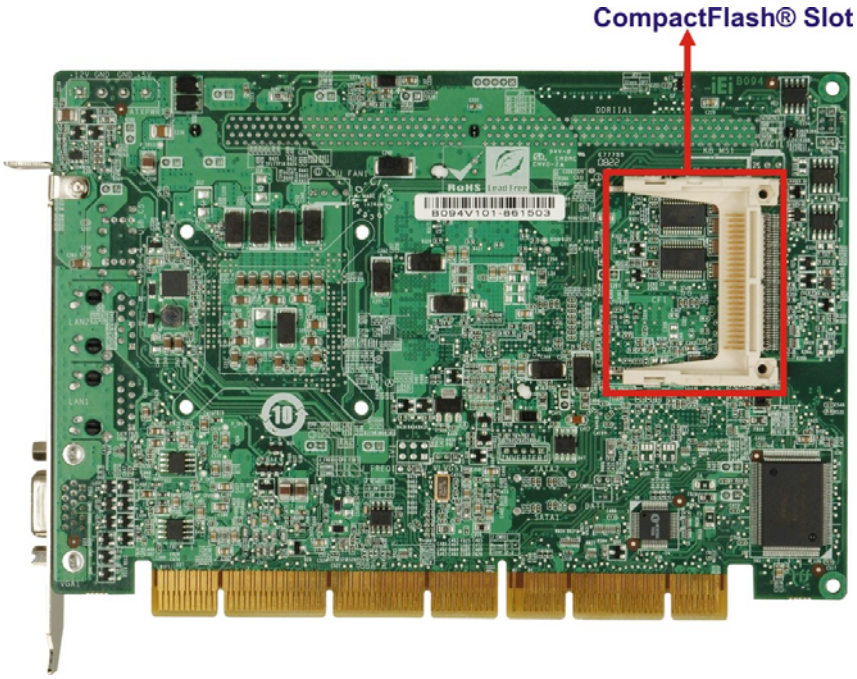



**Figure 1-3: PCISA-9102 Board Overview (Solder Side)**

### 1.2.1 PCISA-9102 Connectors

The PCISA-9102 has the following connectors on-board:

- 1 x Audio connector
- 1 x ATX enable connector
- 1 x CompactFlash® card slot
- 1 x DDR2 DIMM socket
- 1 x Digital I/O connector
- 1 x Fan connector
- 1 x Floppy disk connector
- 1 x Front panel connector
- 1 x IDE Interface connector
- 1 x Infrared interface connector
- 1 x Keyboard/Mouse connector
- 1 x LCD backlight connector
- 1 x LVDS LCD connector
- 1 x Parallel port connector

- 1 x Power connector
- 1 x RS-232 serial port connector
- 1 x RS-232/422/485 serial port connector
- 2 x SATA connectors
- 1 x SDVO connector
- 2 x USB connectors

The PCISA-9102 has the following connectors on the board rear panel:

- 1 x CRT connector
- 2 x Ethernet connectors
- 2 x USB 2.0 ports

The PCISA-9102 has the following on-board jumpers:

- CF card setup
- Clear CMOS
- CPU frequency selection
- COM 2 function selection
- LCD voltage selection
- LVDS panel resolution selection

The location of these connectors on the motherboard can be seen in **Figure 1-1**. These connectors are fully described in **Chapter 3**.

### 1.2.2 Technical Specifications

PCISA-9102 technical specifications are listed in **Table 1-2**. Detailed descriptions of each specification can be found in **Chapter 2**.

| SPECIFICATION | PCISA-9102 |
|---|---|
| **CPUs Supported** | Socket 479 Intel® Pentium® M<br>Socket 479 Intel® Celeron® M<br>On-board 1 GHz Intel® Celeron® M with 512 KB/zero cache |
| **FSB** | 400 MHz |

| | |
|---|---|
| **Chipsets** | Northbridge: Intel® 910GMLE<br>Southbridge: Intel® ICH6-M |
| **Graphics Support** | Intel® Graphics Media Accelerator (GMA) 900 |
| **Display** | **CRT**<br>**LVDS:** Dual-channel 24-bit LVDS |
| **Memory** | One 240-pin 400 MHz single-channel DDR2 SDRAM DIMM (system max. 1 GB) |
| **Super I/O** | Winbond W83627EHG |
| **Serial ATA (SATA)** | Two SATA connectors with 1.5 Gb/s transfer rates |
| **HDD Interface** | One IDE channel supports two Ultra ATA 100/66/33 devices |
| **FDD Interface** | One FDD connector |
| **SSD** | One CompactFlash® Type I or Type II slot |
| **USB Interfaces** | Six USB 2.0 devices supported (four internal and two external) |
| **Serial Ports** | One RS-232<br>One RS-232/422/485 |
| **Keyboard/Mouse** | One keyboard/mouse connector (6-pin header) |
| **Infrared** | One IrDA connector through the Winbond W83627EHG super I/O. supports:<br>• Serial Infrared (SIR)<br>• Amplitude Shift Keyed IR (ASKIR) |
| **Digital I/O** | 8-bit digital I/O, 4-bit input / 4-bit output by super I/O |
| **Audio** | 7.1 channel HD audio via AC-KIT883HD audio kit or<br>5.1 channel AC'97 audio via AC-KIT08R audio kit |
| **Ethernet** | Dual Broadcom BCM5787M PCIe GbE controllers |
| **BIOS** | AMI BIOS Label |

| | |
|---|---|
| **Power** | AT and ATX power |
| **Power Consumption** | 5V @ 2.51 A, 12V @ 2.15 A, 3.3V@1.27A, 5VSB@0.3A<br>(1.80 GHz Intel® Pentium® M 745 with a 400 MHz FSB and a 1 GB DDR2 DIMM) |
| **Operating Temperature** | Minimum: 0ºC (32°F)<br>Maximum: 60°C (140°F) |
| **Humidity** | 5%~95% non condensing |
| **Physical Dimensions** | 185 mm x 127.6 mm (width x length) |
| **Weight (GW/NW)** | 1000 g / 230 g |

**Table 1-2: Technical Specifications**

Chapter

2

# Detailed Specifications

## 2.1 Overview

This chapter describes the specifications and on-board features of the PCISA-9102 in detail.

## 2.2 Dimensions

### 2.2.1 Board Dimensions

The dimensions of the board are listed below:

- **Length**: 185.0 mm
- **Width**: 127.6 mm

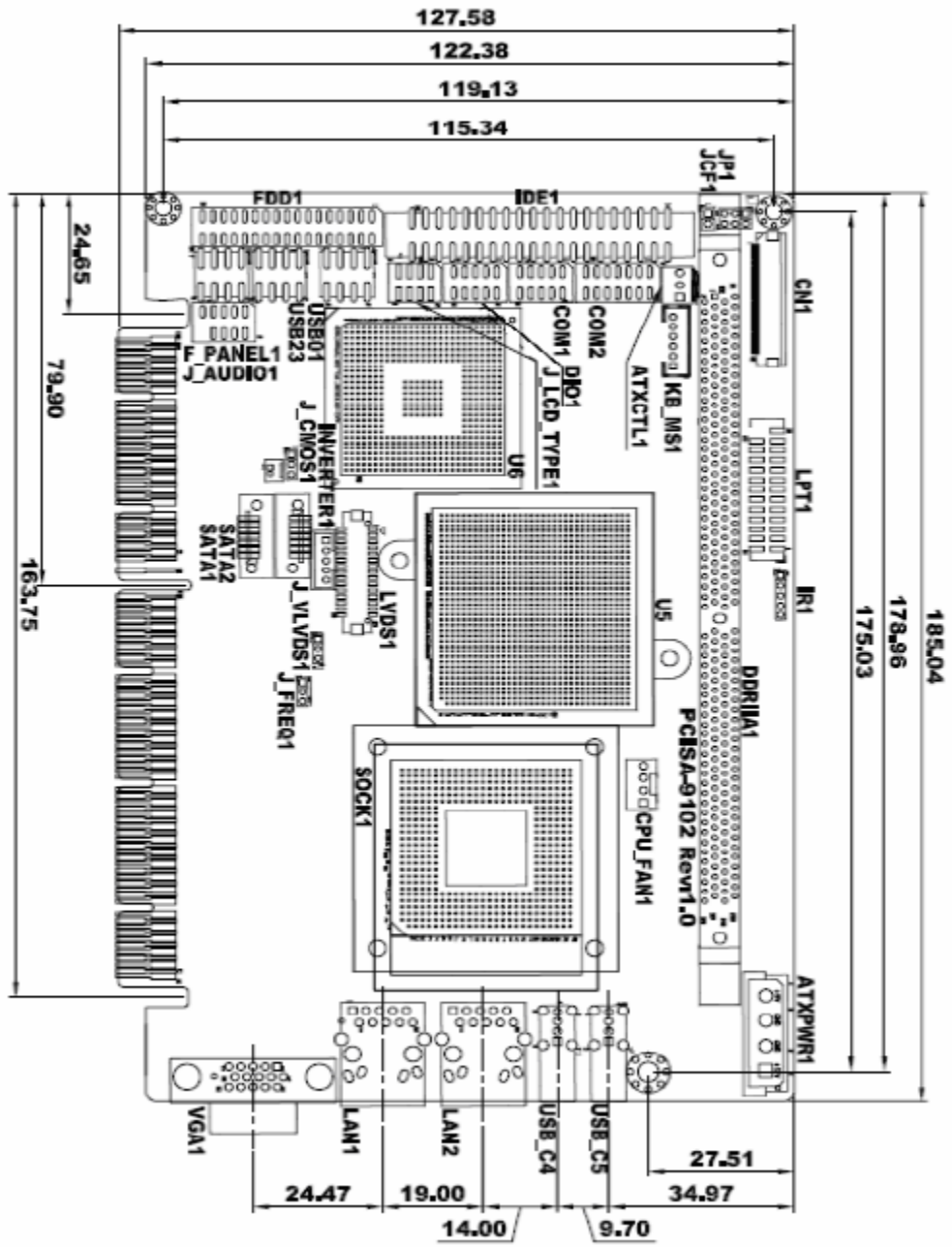



**Figure 2-1: PCISA-9102 Dimensions (mm)**

### 2.2.2 External Interface Panel Dimensions

External peripheral interface connector panel dimensions are shown in **Figure 2-2**.

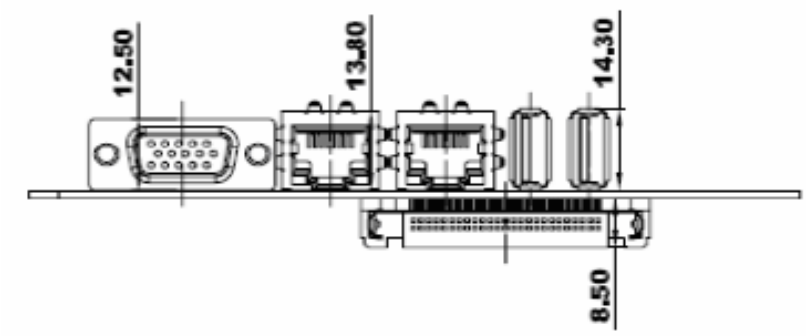



**Figure 2-2: External Interface Panel Dimensions (mm)**

## 2.3 Data Flow

The PCISA-9102 motherboard comes with an Intel® 910GMLE GMCH and an Intel® ICH6-M I/O Controller Hub. **Figure 2-3** shows the data flow between the system chipset, the CPU and other components installed on the motherboard.

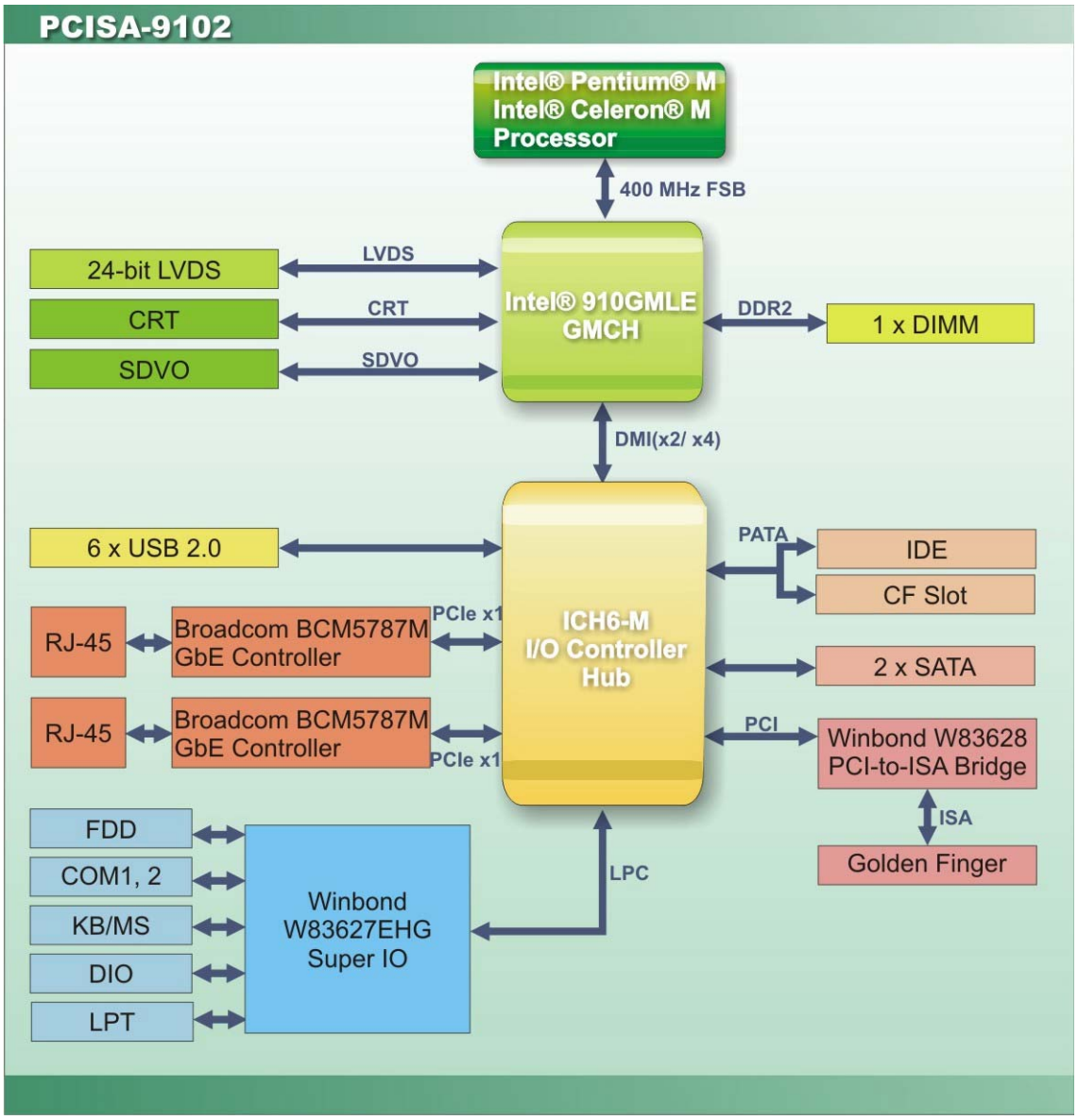



**Figure 2-3: Data Flow Block Diagram**

## 2.4 Compatible Processors

**Table 2-1** lists the Intel® processors supported on the PCISA-9102. All the processors in **Table 2-1** are 90nm Socket 479 processors.

| Processor | Max. CPU Speed | FSB Speed | Max. Cache Size |
|---|---|---|---|
| Intel® Pentium® M | 2.10 GHz | 400 MHz | 2 MB |
| Intel® Celeron® M | 1.70 GHz | 400 MHz | 1 MB |

**Table 2-1: Supported Intel® Processors**

## 2.5 Intel® 910GMLE Graphics and Memory Controller Hub

### 2.5.1 Intel® 910GMLE Overview

The Intel® 910GMLE GMCH has the Intel® Graphics Media Accelerator 900 (Intel® GMA 900) to support integrated graphics. The integrated graphics and memory controller hub (GMCH) facilitates the flow of information primarily between the following four interfaces:

- Front Side Bus (FSB)
- System Memory Interface
- Graphics Interface
- Direct Media Interface (DMI)

### 2.5.2 Intel® 910GMLE Front Side Bus (FSB) Support

The Intel® 910GMLE GMCH supports processors with a 400 MHz FSB. The Socket 479, Intel® 910GMLE GMCH and the FSB are shown in **Figure 2-4**.

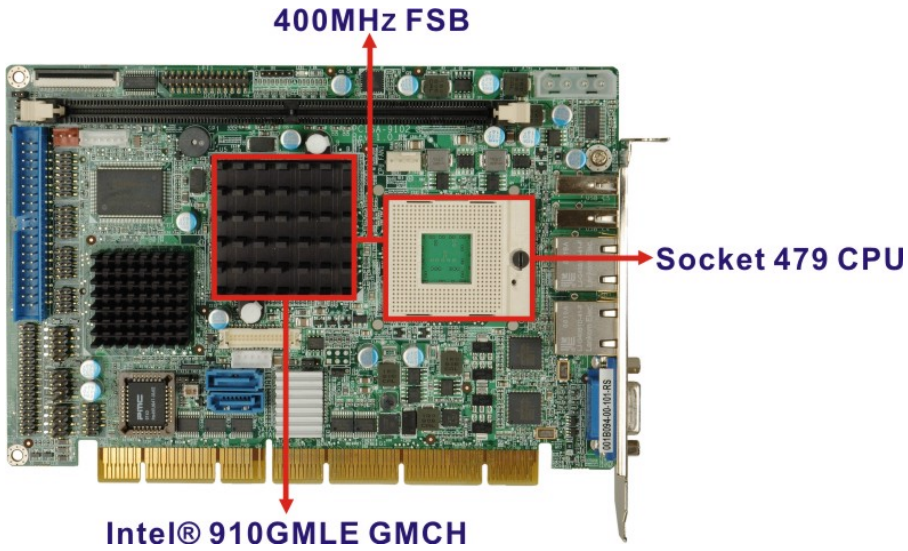



**Figure 2-4: Front Side Bus (FSB)**

### 2.5.3 Intel® 910GMLE Memory Support

**WARNING:**

Only DDR2 memory module can be installed on the PCISA-9102. Do not install DDR memory modules. If a DDR memory module is installed on the PCISA-9102, the PCISA-9102 may be irreparably damaged.

The Intel® 910GMLE GMCH on the PCISA-9102 supports one 240-pin DDR2 DIMM with the following features:

- One 240-pin DIMM
- DDR2 only (**DO NOT** install a DDR DIMM)
- Single-channel
- Capacities of 256 MB, 512 MB or 1 GB
- Transfer speeds of 400 MHz
- 64-bit wide channel

The memory sockets are shown in **Figure 2-5**.

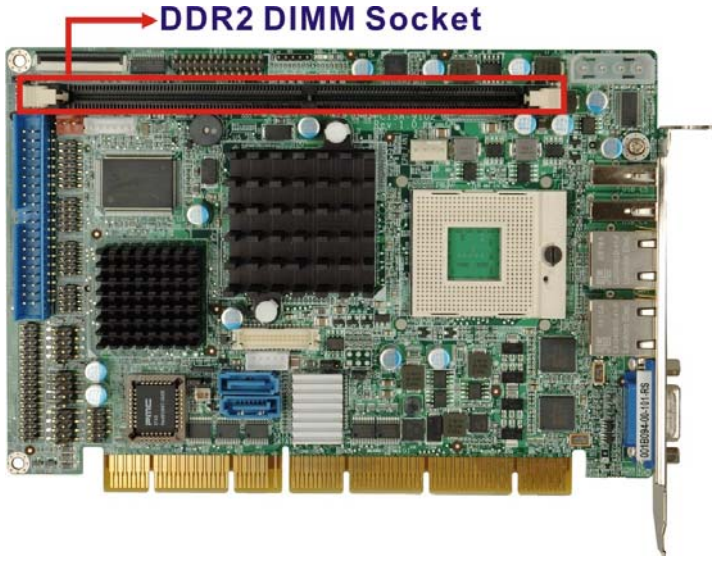



**Figure 2-5: 240-pin DDR2 DIMM Socket**

### 2.5.4 Intel® 910GMLE Integrated Graphics

The Intel® 910GMLE GMCH has a mobile Intel® Graphics Media Accelerator 900 integrated graphics engine that supports the following display devices:

- Analog CRT
- LVDS
- SDVO

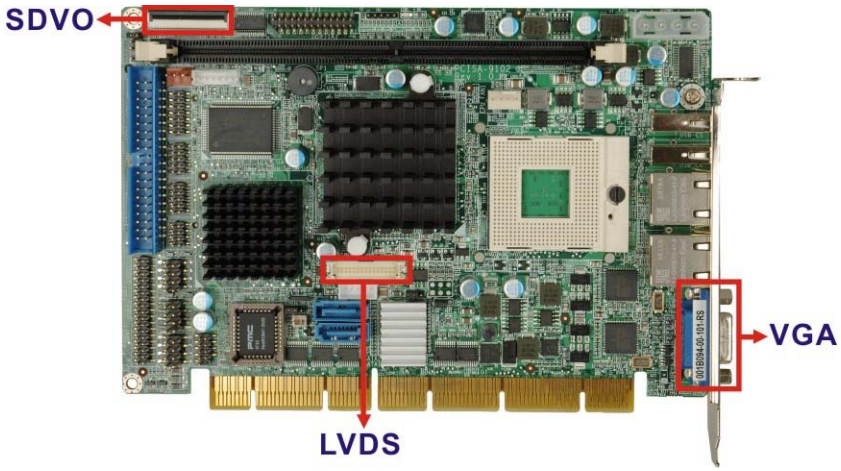



**Figure 2-6: Integrated Graphics Interfaces**

### 2.5.4.1 Intel® 910GMLE Analog CRT Support

A DB-15 VGA connector on the external peripheral interface connector panel is interfaced to the Intel® 910GMLE graphics engine. The Intel® 910GMLE internal graphics engine supports:

- Max DAC frequency up to 400 MHz
- 24-bit RAMDAC
- Analog CRT monitors up to QXGA (2048 x 1536).

### 2.5.4.2 Intel® 910GMLE LVDS Support

A 30-pin LVDS crimp connector is interfaced to the Intel® 910GMLE graphics engine. The Intel® 910GMLE internal graphics engine supports LVDS displays with the following features:

- Compliant with ANSI/TIA/EIA -644-2001 spec
- Integrated dual channel LVDS interface supported on Display Pipe B only
- Supports 25 MHz to 112 MHz single/dual channel LVDS interface
  - Single channel LVDS interface support: 1 x 18 bpp
  - Dual channels LVDS interface support: 2 x 18 bpp
- TFT panel type supported
- Maximum Panel size supported up to UXGA
- Maximum Wide panel size supported up to WUXGA
- Ambient Light Sense support for automatic backlight brightness adjustments
- Intel Display Power Savings Technology 2.0 support
- Supports Single pipe simultaneous display with the CRT DAC and the LVDS ports under the following conditions:
  - Timings must match for both display
- Panel Fitting. Panning, and Center mode supported
- Spatial Dithering support to emulate up to 16 million colors for 18bpp TFT panels
- Spread spectrum clocking (SSC) supported
  - Supports down and center SSC via an SSC clock from an external SSC clock chip.

- Supports down spread of – 2.5% or center spread of ± -1.25% in reference 30-50 kHz modulation rate

- SSC must be disabled for LVDS port and CRT DAC single pipe simultaneous display mode.
- Panel Power Sequencing support
  - Power down state can be either zero volt or high impedance
- Integrated PWM interface for LCD Backlight Inverter Control
- Up to UXGA monitors with a maximum resolution of 1600 x 1200
- 24-bit 25 MHz to 112 MHz single-channel or dual-channel LVDS screens
- CPIS 1.5 compliant LVDS screens

#### 2.5.4.3 Intel® 910GMLE SDVO Support

The Intel® 910GMLE internal graphics engine has the following SDVO output features:

- Two SDVO ports are supported
- Supports a variety display devices such as DVI, LVDS, etc.
- Compliant with DVO specification 1.0 when combined with a DVI compliant external device and connector.
- Data sourced from either display Pipe A or Pipe B
- Supports single pipe simultaneous display with the DAC or LVDS ports
- Timings must match for both display
- Single pipe not supported with SSC on LVDS port
- Each SDVO Port support display pixel rates up to 200 MP/s (600 MB/s)
- Fast point-to-point GMBUS is provided for SDVO device control
- Supports Hot Plug and Display
- Support for HDCP SDVO devices

### 2.5.5 Intel® 910GMLE Direct Management Interface (DMI)

The Direct Media Interface (DMI) is the communication bus between the Intel® 910GMLE GMCH and the ICH6-M I/O controller hub (ICH). The DMI is a high-speed interface that integrates advanced priority-based servicing and allows for concurrent traffic and true isochronous transfer capabilities. The DMI is shown in **Figure 2-7**.

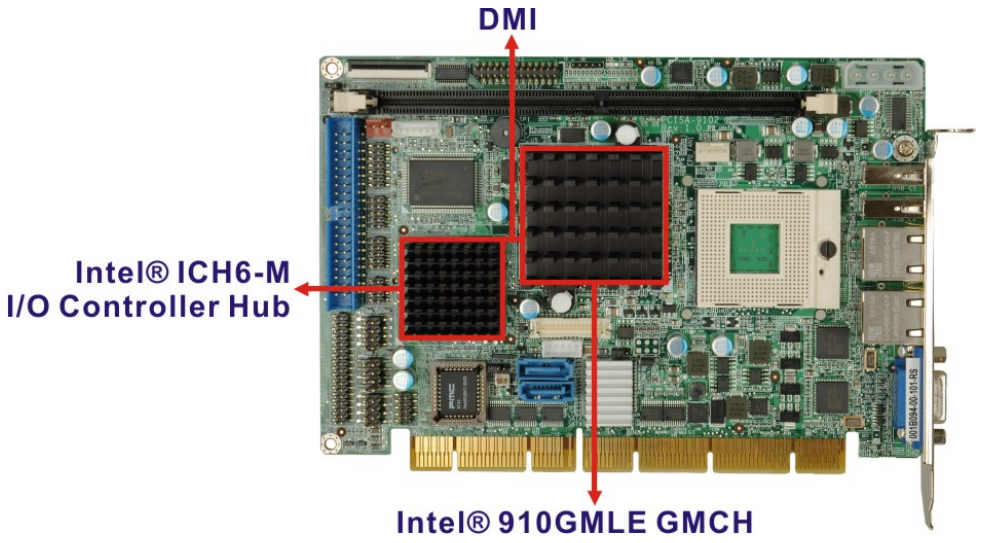



**Figure 2-7: DMI Chip-to-Chip Connection**

Features of the Intel® 910GMLE DMI are listed below:

- 2GB/s (1GB/s in each direction) bus speed
- Configurable as x2 or x4 DMI lanes
- 32-bit downstream address

## 2.6 Intel® ICH6-M I/O Controller Hub

### 2.6.1 Intel® ICH6-M Overview

The Intel® ICH6-M Southbridge chipset is connected to the Intel® 915GM Northbridge GMCH through the chip-to-chip Direct Media Interface (DMI). Some of the features of the Intel® ICH6-M are listed below.

- Complies with PCI Express Base Specification, Revision 1.0a
- Complies with PCI Local Bus Specification, Revision 2.3 and supports 33MHz PCI operations
- Supports ACPI Power Management Logic
- Contains:
  - Enhanced DMA controller
  - Interrupt controller
  - Timer functions
- Integrated SATA host controller with DMA operations interfaced to two SATA

connectors on the PCISA-9102

- Integrated IDE controller supports Ultra ATA 100/66/33
- Supports the four USB 2.0 devices on the PCISA-9102 with four UHCI controllers and one EHCI controller
- Complies with System Management Bus (SMBus) Specification, Version 2.0
- Supports Audio Codec ’97 (AC’97) Revision 2.3
- Supports Intel® High Definition Audio
- Contains Low Pin Count (LPC) interface
- Supports Firmware Hub (FWH) interface

### 2.6.2 Intel® ICH6-M Audio Codec ’97 Controller

The Audio Codec ’97 (AC’97) controller integrated into the ICH6-M complies with AC’97 Component Specification, Version 2.3. The AC’97 controller is connected to the onboard audio connector. The audio connector is connected to an optional 5.1 channel or 7.1 channel audio kit with an embedded AC’97 audio codec. The AC’97 controller supports up to six PCM audio output channels. Complete surround sound requires six-channel audio consisting of:

- Front left
- Front right
- Back left
- Back right
- Center
- Subwoofer

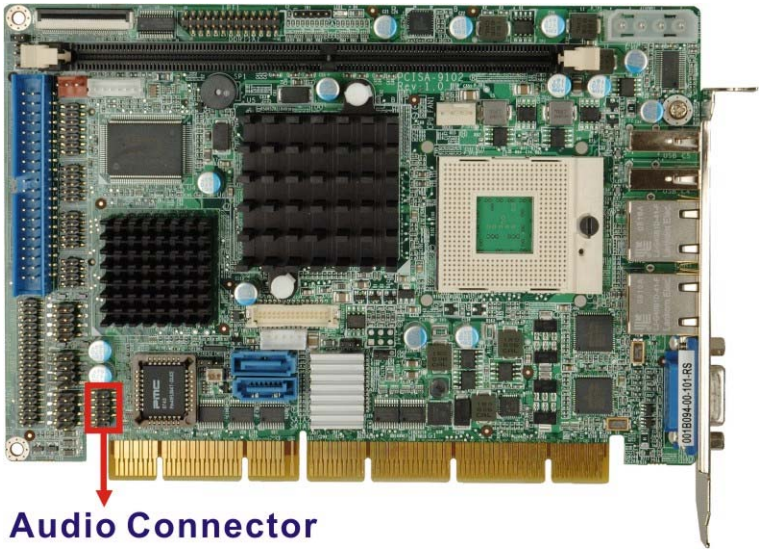



**Figure 2-8: Audio Connector**

### 2.6.3 Intel® ICH6-M IDE Interface

The integrated IDE interface on the ICH6-M supports two IDE hard disks and ATAPI devices. PIO IDE transfers up to 16 MB/s and Ultra ATA transfers of 100 MB/s. The integrated IDE interface is able to support the following IDE HDDs:

- **Ultra ATA/100**, with data transfer rates up to 100 MB/s
- **Ultra ATA/66**, with data transfer rates up to 66 MB/s
- **Ultra ATA/33**, with data transfer rates up to 33 MB/s

| Specification | Ultra ATA/100 | Ultra ATA/66 | Ultra ATA/33 |
|---|---|---|---|
| IDE devices | 2 | 2 | 2 |
| PIO Mode | 0 – 4 | 0 – 4 | 0 – 4 |
| PIO Max Transfer Rate | 16.6 MB/s | 16.6 MB/s | 16.6 MB/s |
| DMA/UDMA designation | UDMA 3 - 4 | UDMA 3 – 4 | UDMA 2 |
| DMA/UDMA Max Transfer | 100 MB/s | 66 MB/s | 33 MB/s |
| Controller Interface | 5V | 5V | 5V |

**Table 2-2: Supported HDD Specifications**

### 2.6.4 Intel® ICH6-M Low Pin Count (LPC) Interface

The ICH6-M LPC interface complies with the LPC 1.1 specifications. The LPC bus from the ICH6-M is connected to the following components:

- BIOS chipset
- Super I/O chipset

For more detailed information please refer to **Section 2.8**.

### 2.6.5 Intel® ICH6-M PCI Interface

The PCI bus on the ICH6-M is compliant with the PCI Revision 2.3 implementation. Some of the features of the PCI interface are listed below.

- PCI Revision 2.3 compliant
- 33 MHz
- 5V tolerant PCI signals (except PME#)
- Integrated PCI arbiter supports up to seven PCI bus masters

#### 2.6.5.1 Winbond W83628 PCI-to-ISA Bridge

The ICH6-M is interfaced to a Winbond W83628 PCI-to-ISA bridge through the PCI bus. The Winbond W83628 PCI-to-ISA bridge is then connected to an ISA edge connector on the bottom of the PCISA-9102 thereby enabling legacy ISA card expansion on the backplane. The PCI to ISA bridge is shown in **Figure 2-9**.

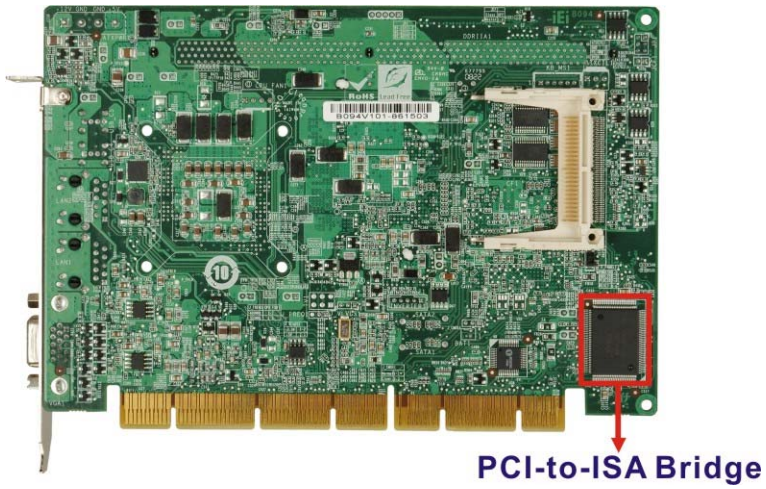



**Figure 2-9: PCI-to-ISA Bridge**

Some of the features of the Winbond PCI-to-ISA Bridge are listed below:

- Full ISA bus support including ISA masters
- 5 V ISA and 3.3 V PCI interfaces
- Supports three ISA compatible slots without buffering
- External BIOS ROM address decode output

### 2.6.6 Intel® ICH6-M PCIe x1 Bus

The Intel® ICH6-M GMCH has four PCIe x1 lanes. Two of the four PCIe lanes are implemented on the PCISA-9102, including:

- Two PCIe x1 lanes are connected to two Broadcom BCM5787M GbE controllers

For more detailed information, please refer to **Section 2.7**.

### 2.6.7 Intel® ICH6-M Real Time Clock

256 bytes of battery backed RAM is provided by the Motorola MC146818A real time clock (RTC) integrated into the ICH6-M. The RTC operates on a 3 V battery and 32.768 KHz crystal. The RTC keeps track of the time and stores system data even when the system is turned off.

### 2.6.8 Intel® ICH6-M SATA Controller

The integrated SATA controller on the ICH6-M supports two SATA drives on the PCISA-9102 with independent DMA operations. SATA controller specifications are listed below.

- Supports two SATA drives
- Supports 1.5 Gb/s data transfer speeds
- Supports Serial ATA Specification, Revision 1.0a

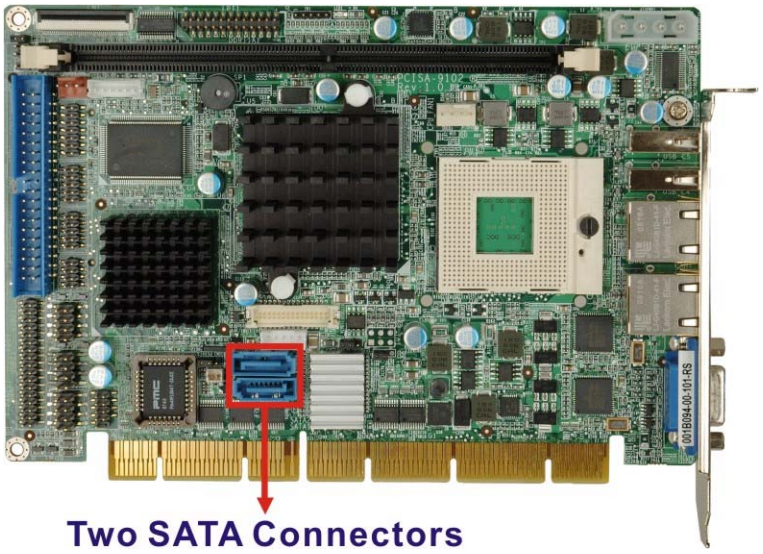



**Figure 2-10: SATA Drive Connectors**

### 2.6.9 Intel® ICH6-M USB Controller

Up to eight high-speed, full-speed or low-speed USB devices are supported by the ICH6-M on the PCISA-9102. High-speed USB 2.0, with data transfers of up to 480 MB/s, is enabled with the ICH6-M integrated Enhanced Host Controller Interface (EHCI) compliant host controller. USB full-speed and low-speed signaling is supported by the ICH6-M integrated Universal Host Controller Interface (UHCI) controllers.

Six of the eight USB ports implemented on the PCISA-9102 are connected to two internal connectors and two external connectors. See **Figure 2-11**.

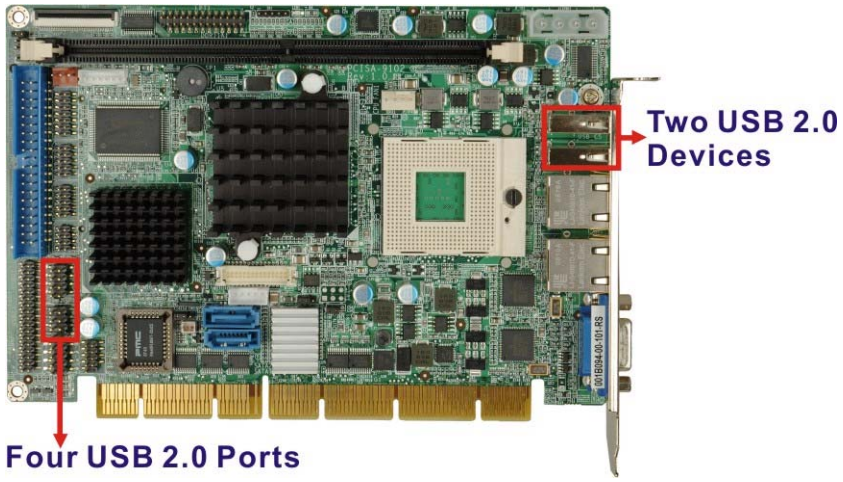



**Figure 2-11: Onboard USB Implementation**

## 2.7 PCIe Bus Components

### 2.7.1 PCIe Bus Overview

The PCIe bus is connected to components listed below:

- Two PCIe x1 lanes are connected to two Broadcom PCIe GbE connectors

### 2.7.2 Broadcom BCM5787M PCIe GbE Controller

Two RJ-45 Ethernet LAN connectors are interfaced directly to two Broadcom BCM5787M PCIe GbE controllers. The Broadcom BCM5787M PCIe GbE controller combines a triple-speed IEEE 802.3 compliant Media Access Controller (MAC) with a triple-speed Ethernet transceiver and interfaced to the Intel® ICH6-M Southbridge through a PCIe x1 lane. The Broadcom BCM5787M GbE controllers are shown in **Figure 2-12** below.

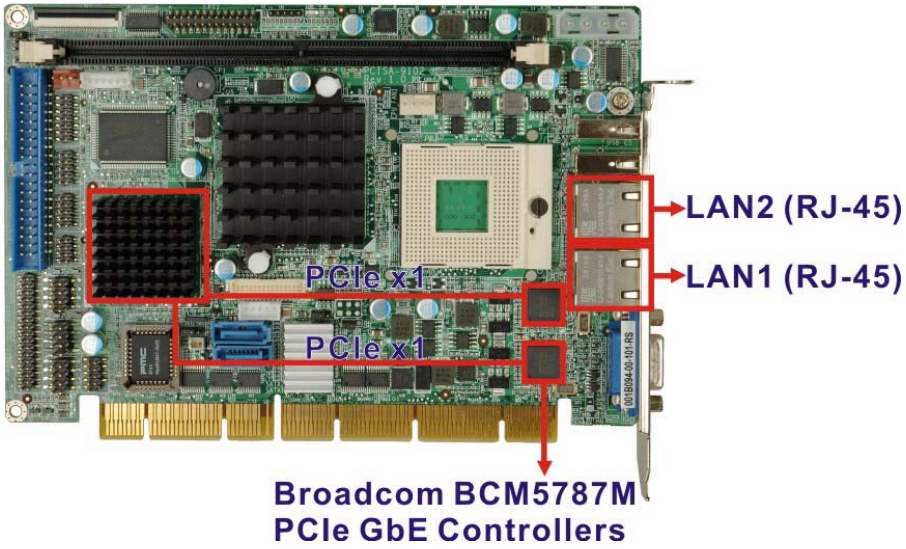



**Figure 2-12: Broadcom BCM5787M PCIe GbE Controllers**

Some of the BCM5787 controller features are listed below:

- Integrated 10/100/1000BASE-T transceiver
- Automatic MDI crossover function
- PCIe v1.0a
- 10/100/1000BASE-T full/half-duplex MAC
- Wake on LAN support meeting the ACPI requirements
- Statistics for SNMP MIB II, Ethernet-like MIB, and Ethernet MIB (802.3z, clause 30)
- Serial EEPROM or serial flash support
- JTAG support

## 2.8 LPC Bus Components

### 2.8.1 LPC Bus Overview

The LPC bus is connected to components listed below:

- BIOS chipset
- Super I/O chipset

### 2.8.2 BIOS Chipset

The BIOS chipset has a licensed copy of AMI BIOS installed on the chipset. Some of the BIOS features are listed below:

- AMI Flash BIOS
- SMIBIOS (DMI) compliant
- Console redirection function support
- PXE (Pre-boot Execution Environment) support
- USB booting support

The BIOS chipset is shown in **Figure 2-13** below.

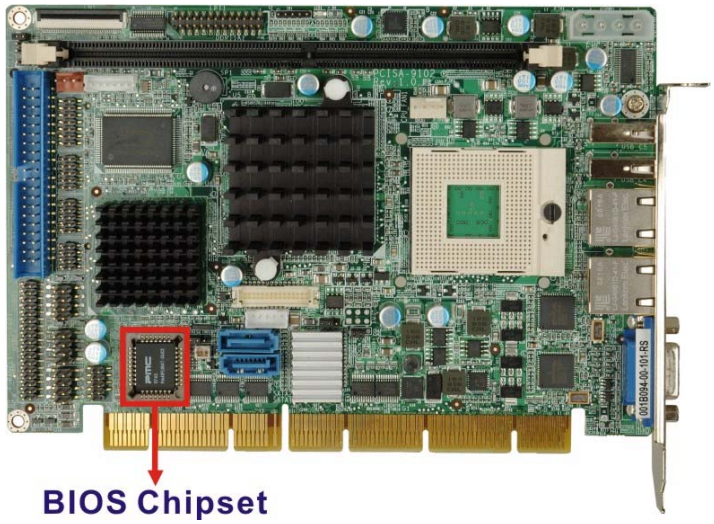



**Figure 2-13: BIOS Chipset**

### 2.8.3 Winbond W83627EHG Super I/O Chipset

The Winbond W83627EHG Super I/O chipset is connected to the ICH6-M Southbridge through the LPC bus. Winbond W83627EHG Super I/O chipset is shown in **Figure 2-14** below.

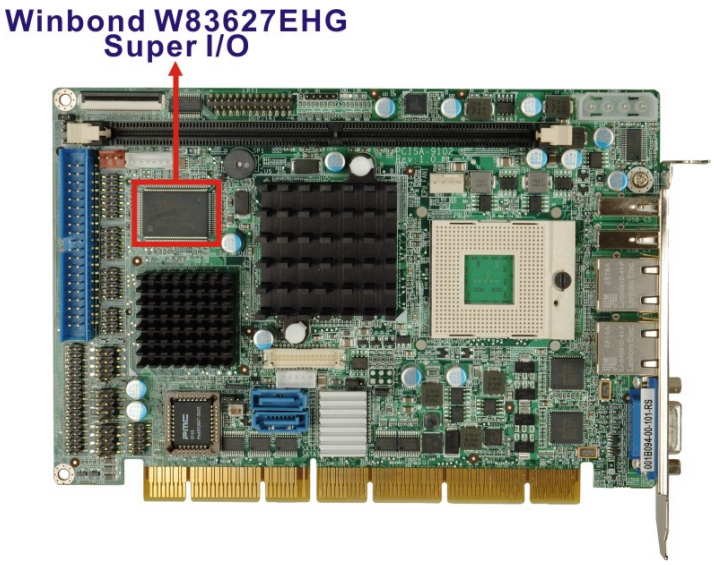



**Figure 2-14: Winbond W83627EHG Super I/O**

The Winbond W83627EHG is an LPC interface-based Super I/O device that comes with Environment Controller integration, floppy disk controller, UART controller and IR controller. Some of the features of the Winbond W83697EHG chipset are listed below:

- LPC Spec. 1.01 compliant
- LDRQ# (LPC DMA) and SERIRQ (serial IRQ) supported
- Hardware monitor functions integrated
- Microsoft PC98/PC99 Hardware Design Guide compliant
- ACPI DPM (Device Power Management) supported

Some of the Super I/O features are described in more detail below:

### 2.8.3.1 Super I/O LPC Interface

The LPC interface on the Super I/O complies with the Intel® Low Pin Count Specification Rev. 1.01. The LPC interface supports both LDRQ# and SERIRQ protocols as well as PCI PME# interfaces.

### 2.8.3.2 Super I/O UART Controller

There are two high-speed 16550 compatible UART controllers integrated onto the Super I/O chipset. Both controllers have 16-byte send/receive FIFO. Some of the features of the UART controllers are listed below:

- MIDI compatible
- Fully programmable serial-interface characteristics:
  - 5, 6, 7, or 8-bit characters
  - Even, odd or no parity bit generation/detection
  - 1, 1.5 or 2 stop bits generation
- Internal diagnostic capabilities:
  - Loop-back control for communications link fault isolation
  - Break, parity, overrun, framing error stimulation
- Programmable baud generator allows division of 1.8461 MHz and 24 MHz by 1 to ($2^{16}$ – 1)
- Maximum baud rate up to 921 kbps for 14.769 MHz and 1.5 Mbps for 24 MHz

### 2.8.3.3 Super I/O Infrared

The onboard Super I/O supports the following infrared specifications:

- IrDA version 1.0 SIR protocol with a maximum baud rate up to 115.2 Kbps

The IR controller on the super I/O is interfaced through the onboard IrDA pin-header on the PCISA-9102.

### 2.8.3.4 Super I/O Hardware Monitor Functions

The Super I/O Hardware Monitor monitors internal voltages, system temperature and the cooling fan speed. All the monitored environmental parameters can be read from the BIOS Hardware Health Configuration menu.

### 2.8.3.5 Super I/O Parallel Port

The Super I/O parallel port (LPT) is compatible with the following LPT specifications.

- IBM parallel port compatible
- PS/2 compatible bi-directional parallel port
- Enhanced Parallel Port (EPP) mode supported. Compatible with IEEE 1284 specifications
- Extended Parallel Port (EPP) mode supported. Compatible with IEEE 1284 specifications
- Enhanced printer port back-drive current protection

The parallel port controller is connected to an onboard LPT connector.

### 2.8.3.6 Super I/O Floppy Disk Drive (FDD) Controller

The Super I/O FDD controller is compatible with the following specifications.

- IBM PC AT disk drive compatible
- Variable write pre-compensation with track selectable capability
- Vertical recording format supported
- DMA logic enabled
- 16-byte data FIFOs
- Overrun and under run conditions detected
- Built-in address mark detection circuitry to simplify the read electronics
- FDD anti-virus functions with software write protect and FDD write enable signal
- Supports 3.5-inch or 5.25-inch FDD
- Compatible with industry standard 82077
- Supported capacities:
  - 360 K
  - 720 K
  - 1.2 M
  - 1.44 M
  - 2.88 M
- Supported transfer rates
  - 250 Kbps
  - 300 Kbps
  - 500 Kbps
  - 1 Mbps

- 2 Mbps
- 3-mode FDD and Win95/98 driver supported

The FDD controller is interfaced to a FDD pin-header connector on the PCISA-9102.

#### 2.8.3.7 Super I/O Keyboard and Mouse Controller

The Super I/O keyboard and mouse controller is compatible with the following specifications.

- 8042 compatible
- Asynchronous access to two data registers and one status register
- Compatible with 8042 software
- PS/2 mouse supported
- Port 92 supported
- Interrupt and polling modes supported
- Fast Gate A20 and Hardware Keyboard Reset
- 8-bit timer/counter

The keyboard and mouse controller is interfaced to a keyboard and mouse connected to the PCISA-9102 through the onboard connector.

#### 2.8.3.8 Super I/O GPIO Ports

The Super I/O has 22 programmable GPIO ports.

#### 2.8.3.9 Super I/O Fan Speed and Fan Control

The super I/O can both monitor and control the fan speed. The super I/O is interfaced to the fan on the backplane through the board-to-board connectors.

## 2.9 Environmental and Power Specifications

### 2.9.1 System Monitoring

Three thermal inputs on the PCISA-9102 Super I/O Enhanced Hardware Monitor monitor the following temperatures:

- CPU temperature
- PWM temperature
- System temperature

Eight voltage inputs on the PCISA-9102 Super I/O Enhanced Hardware Monitor monitor the following voltages:

- +1.5V
- +1.8V
- +3.30V
- +5.00V
- +12.0V
- VBAT

The PCISA-9102 Super I/O Enhanced Hardware Monitor also monitors the following fan speed:

- CPU Fan speed

The values for the above environmental parameters are all recorded in the BIOS Hardware Health Configuration menu.

### 2.9.2 Operating Temperature and Temperature Control

The maximum and minimum operating temperatures for the PCISA-9102 are listed below.

- Minimum Operating Temperature: 0ºC (32°F)
- Maximum Operating Temperature: 60°C (140°F)

A cooling fan and heat sink must be installed on the CPU. Thermal paste must be smeared on the lower side of the heat sink before it is mounted on the CPU. Heat sinks are also mounted on the GMCH and ICH chipsets to ensure the operating temperature of these chips remain low.

### 2.9.3 Power Consumption

**Table 2-3** shows the power consumption parameters for the PCISA-9102 running with a 1.80 GHz Intel® Pentium® M 745 with a 400 MHz FSB and a 400 MHz 1 GB DDR2 DIMM,

| Voltage | Current |
|---|---|
| +5 V | 2.51 A |
| +12 V | 2.15 A |
| +3.3 V | 1.27 A |
| 5 V standby | 0.3 A |

**Table 2-3: Power Consumption**

Chapter

3

# Unpacking

## 3.1 Anti-static Precautions

**WARNING:**

Failure to take ESD precautions during the installation of the PCISA-9102 may result in permanent damage to the PCISA-9102 and severe injury to the user.

Electrostatic discharge (ESD) can cause serious damage to electronic components, including the PCISA-9102. Dry climates are especially susceptible to ESD. It is therefore critical that whenever the PCISA-9102, or any other electrical component is handled, the following anti-static precautions are strictly adhered to.

- ***Wear an anti-static wristband***: Wearing a simple anti-static wristband can help to prevent ESD from damaging the board.
- ***Self-grounding***: Before handling the board touch any grounded conducting material. During the time the board is handled, frequently touch any conducting materials that are connected to the ground.
- ***Use an anti-static pad***: When configuring the PCISA-9102, place it on an antic-static pad. This reduces the possibility of ESD damaging the PCISA-9102.
- ***Only handle the edges of the PCB***: When handling the PCB, hold the PCB by the edges.

## 3.2 Unpacking

### 3.2.1 Unpacking Precautions

When the PCISA-9102 is unpacked, please do the following:

- Follow the anti-static precautions outlined in **Section 3.1**.
- Make sure the packing box is facing upwards so the PCISA-9102 does not fall out of the box.
- Make sure all the components shown in **Section 3.3** are present.

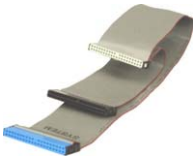
## 3.3 Unpacking Checklist

**NOTE:**

If some of the components listed in the checklist below are missing, please do not proceed with the installation. Contact the IEI reseller or vendor you purchased the PCISA-9102 from or contact an IEI sales representative directly. To contact an IEI sales representative, please send an email to sales@iei.com.tw.

### 3.3.1 Package Contents

The PCISA-9102 is shipped with the following components:

| Quantity | Item and Part Number | Image |
|---|---|---|
| 1 | PCISA-9102 CPU card | |
| 1 | Parallel port and RS-232 cable<br>(**P/N**: 19800-000027-RS) | |
| 1 | IDE cable<br>(**P/N**: 32200-000052-RS) |  |
| 2 | SATA cables<br>(**P/N**: 32000-062800-RS) | |
| 1 | SATA power cable<br>(**P/N**: 32100-088600-RS) | |

| | | |
|---|---|---|
| 1 | Mini jumper pack | |
| 1 | Quick Installation Guide | |
| 1 | Dual port USB cable<br>(**P/N**: CB-USB02-RS) | |
| 1 | Utility CD | |

**Table 3-1: Package List Contents**

### 3.3.2 Optional Items

**NOTE:**

The items listed in this section are optional items that must be ordered separately. Please contact your PCISA-9102 vendor, distributor or reseller for more information or, contact IEI directly by sending an email to sales@iei.com.tw.

The following optional items are available for the PCISA-9102.

| Quantity | Item and Part Number | Image |
|---|---|---|
| 1 | 7.1 Channel HD audio kit with Realtek ALC883<br>(**P/N**: AC-KIT883HD-R10) | |

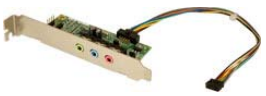
| Quantity | Item and Part Number | Image |
|---|---|---|
| 1 | 5.1 Channel AC'97 audio kit with Realtek ALC655<br>(**P/N**: AC-KIT08R-R10) |  |
| 1 | CPU Cooler<br>(**P/N**: CF-479B-RS) | |
| 1 | FDD cable<br>(**P/N**: 32200-000058-RS) | |
| 1 | KB/MS cable with bracket<br>(**P/N**: 19800-000075-RS) | |
| 1 | RS-232/422/485 cable<br>(**P/N**: 32200-000077-RS) | |

**Table 3-2: Optional Items**

Chapter

4

# Connectors and Jumpers

## 4.1 Peripheral Interface Connectors

**Section 4.1.1** shows peripheral interface connector locations. **Section 4.1.2** lists all the peripheral interface connectors seen in **Section 4.1.1**.

### 4.1.1 PCISA-9102 Layout

**Figure 4-1** shows the on-board peripheral connectors, backplane peripheral connectors and on-board jumpers.

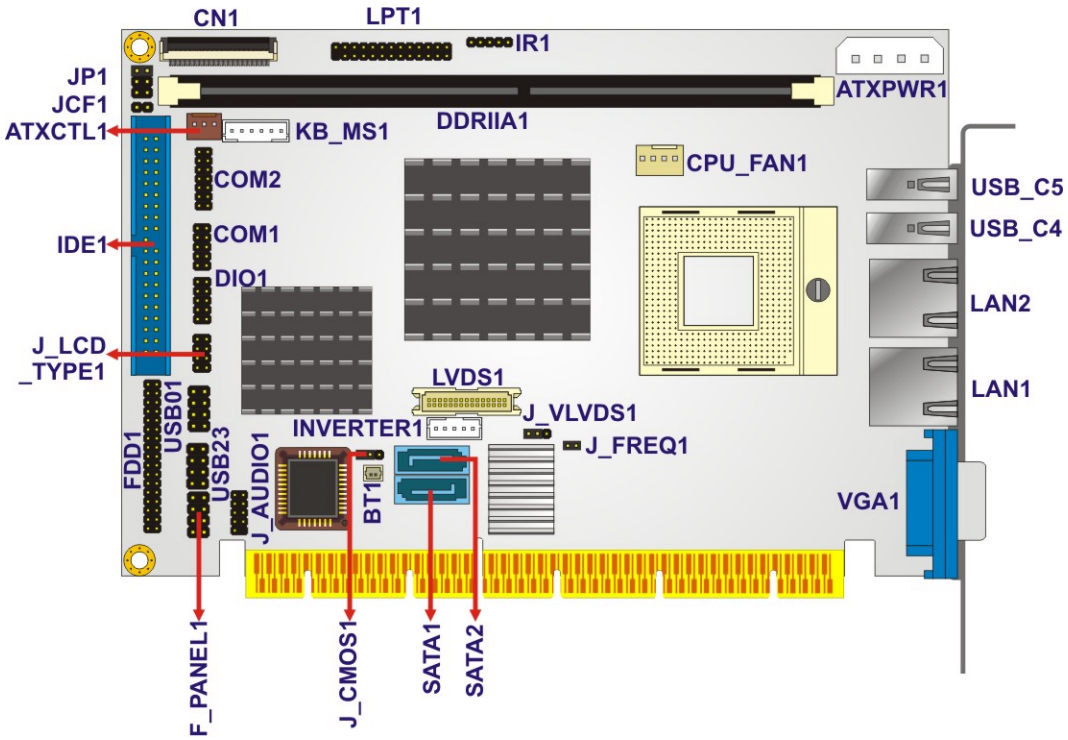



**Figure 4-1: Connector and Jumper Locations (Front Side)**

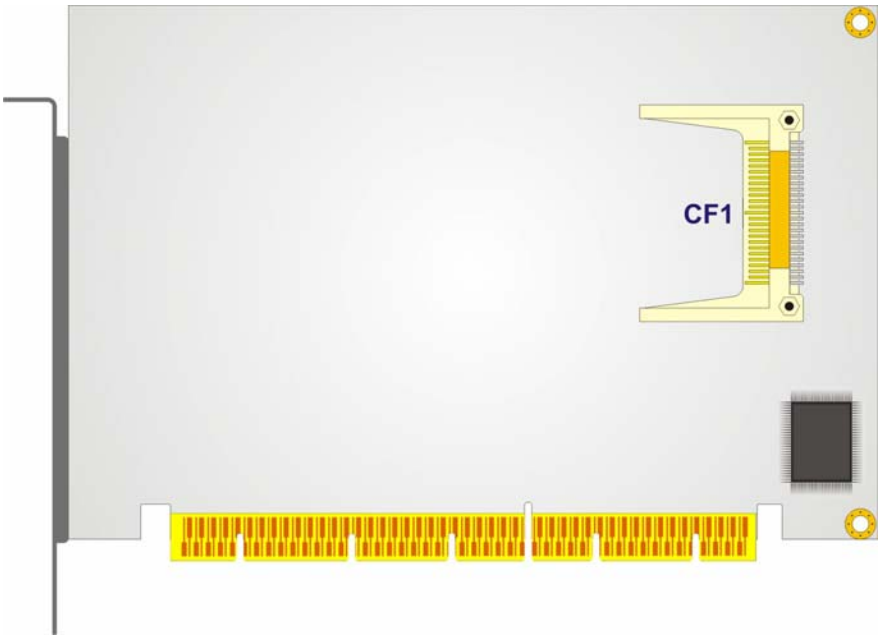



**Figure 4-2: Connector and Jumper Locations (Solder Side)**

### 4.1.2 Peripheral Interface Connectors

**Table 4-1** shows a list of the peripheral interface connectors on the PCISA-9102. Detailed descriptions of these connectors can be found in **Section 4.2**.

| Connector | Type | Label |
|---|---|---|
| | | |
| ATX enable connector | 3-pin wafer | ATXCTL1 |
| Audio connector | 10-pin header | J_AUDIO1 |
| CompactFlash® card slot | 50-pin slot | CF1 |
| DDR2 DIMM socket | 240-pin slot | DDRIIA1 |
| Digital Input/Output connector | 10-pin header | DIO1 |
| Fan connector, CPU | 4-pin wafer | CPU_FAN1 |
| FDD connector | 34-pin header | FDD1 |

| | | |
|---|---|---|
| Front panel connector | 8-pin header | F_PANEL1 |
| IDE Interface connector | 40-pin box header | IDE1 |
| Infrared interface connector | 5-pin header | IR1 |
| Keyboard connector | 6-pin wafer | KB_MS1 |
| LCD backlight connector | 5-pin wafer | INVERTER1 |
| LVDS LCD connector | 30-pin crimp | LVDS1 |
| Parallel port connector | 26-pin header | LPT1 |
| Power connector | 4-pin connector | ATXPWR1 |
| SATA drive connector (1) | 7-pin SATA connector | SATA1 |
| SATA drive connector (2) | 7-pin SATA connector | SATA2 |
| SDVO connector | 47-pin connector | CN1 |
| Serial port connector | 10-pin header | COM1 |
| Serial port connector | 14-pin header | COM2 |
| USB connector (1) | 8-pin header | USB01 |
| USB connector (2) | 8-pin header | USB23 |

**Table 4-1: Peripheral Interface Connectors**

### 4.1.3 Rear Panel Connectors

**Table 4-2** lists the rear panel connectors on the PCISA-9102. Detailed descriptions of these connectors can be found in **Section 4.3**.

| Connector | Type | Label |
|---|---|---|
| CRT connector | 15-pin female connector | VGA1 |
| Ethernet connector (1) | RJ-45 connector | LAN1 |
| Ethernet connector (2) | RJ-45 connector | LAN2 |

| | | |
|---|---|---|
| USB 2.0 port (1) | USB port connector | USB_C4 |
| USB 2.0 port (2) | USB port connector | USB_C5 |

**Table 4-2: Rear Panel Connectors**

## 4.2 Internal Peripheral Connectors

Internal peripheral connectors are found on the motherboard and are only accessible when the motherboard is outside of the chassis. This section has complete descriptions of all the internal, peripheral connectors on the PCISA-9102.

### 4.2.1 ATX Power Supply Enable Connector

**CN Label:** **ATXCTL1**

**CN Type:** 3-pin wafer (1x3)

**CN Location:** See **Figure 4-3**

**CN Pinouts:** See **Table 4-3**

The ATX power supply enable connector enables the PCISA-9102 to be connected to an ATX power supply.

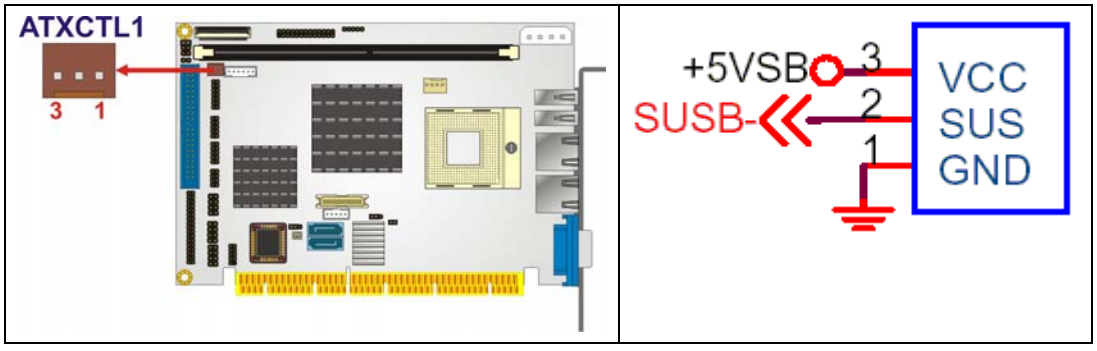



**Figure 4-3: ATX Power Supply Enable Connector Location**

| PIN NO. | DESCRIPTION |
|---|---|
| 1 | GND |
| 2 | PS-ON |
| 3 | +5V Standby |

**Table 4-3: ATX Power Supply Enable Connector Pinouts**

### 4.2.2 Audio Connector

**CN Label:** **J_AUDIO1**

**CN Type:** 10-pin header (2x5)

**CN Location:** See **Figure 4-4**

**CN Pinouts:** See **Table 4-4**

The audio connector connects to the optional audio kit to provide 7.1 channels HD audio or 5.1 channels AC'97 audio to the system.

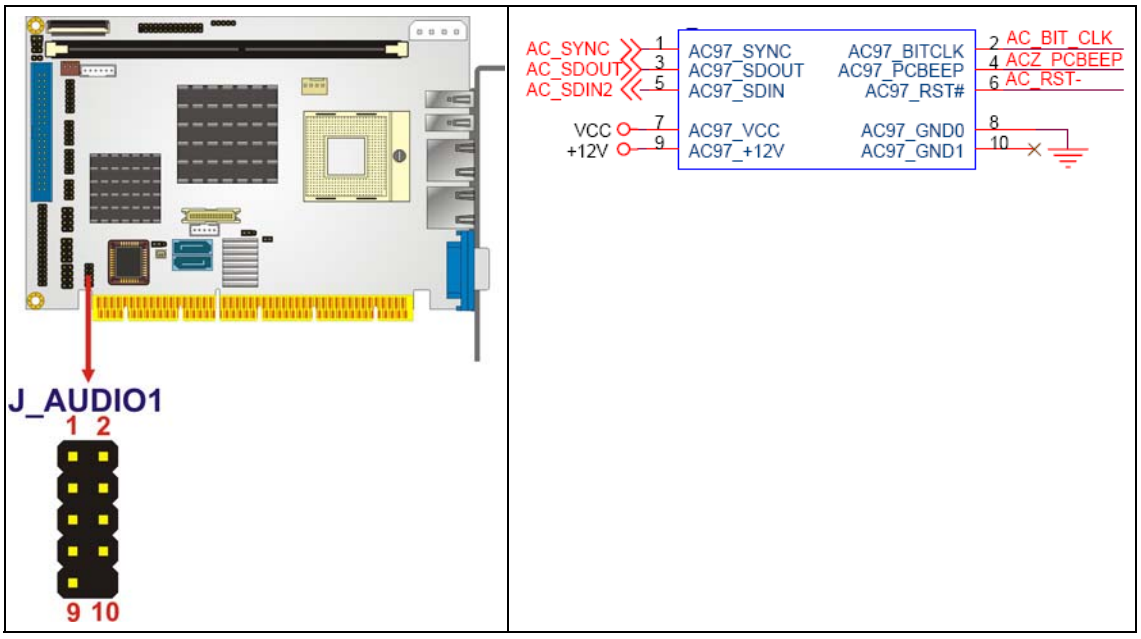



**Figure 4-4: Audio Connector Location**

| PIN NO. | DESCRIPTION | PIN NO. | DESCRIPTION |
|---|---|---|---|
| 1 | SYNC | 2 | BITCLK |
| 3 | SDOUT | 4 | PCBEEP |
| 5 | SDIN | 6 | RST# |
| 7 | VCC | 8 | GND |
| 9 | +12V | | |

**Table 4-4: Audio Connector Pinouts**

### 4.2.3 CompactFlash® Socket

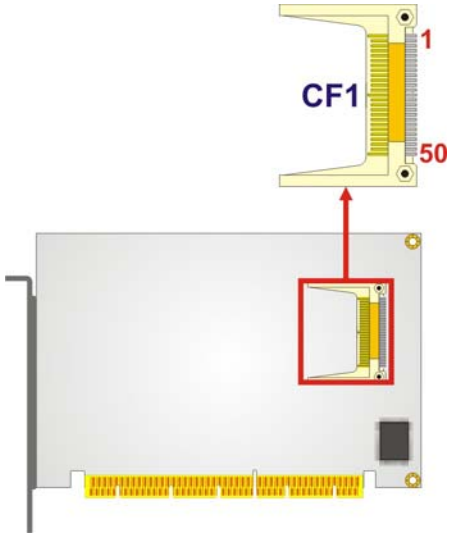
**CN Label:** **CF1** (solder side)

**CN Type:** 50-pin slot (2x25)

**CN Location:** See **Figure 4-5**

**CN Pinouts:** See **Table 4-5**

A CF Type I or Type II memory card is inserted to the CF socket on the solder side of the PCISA-9102.



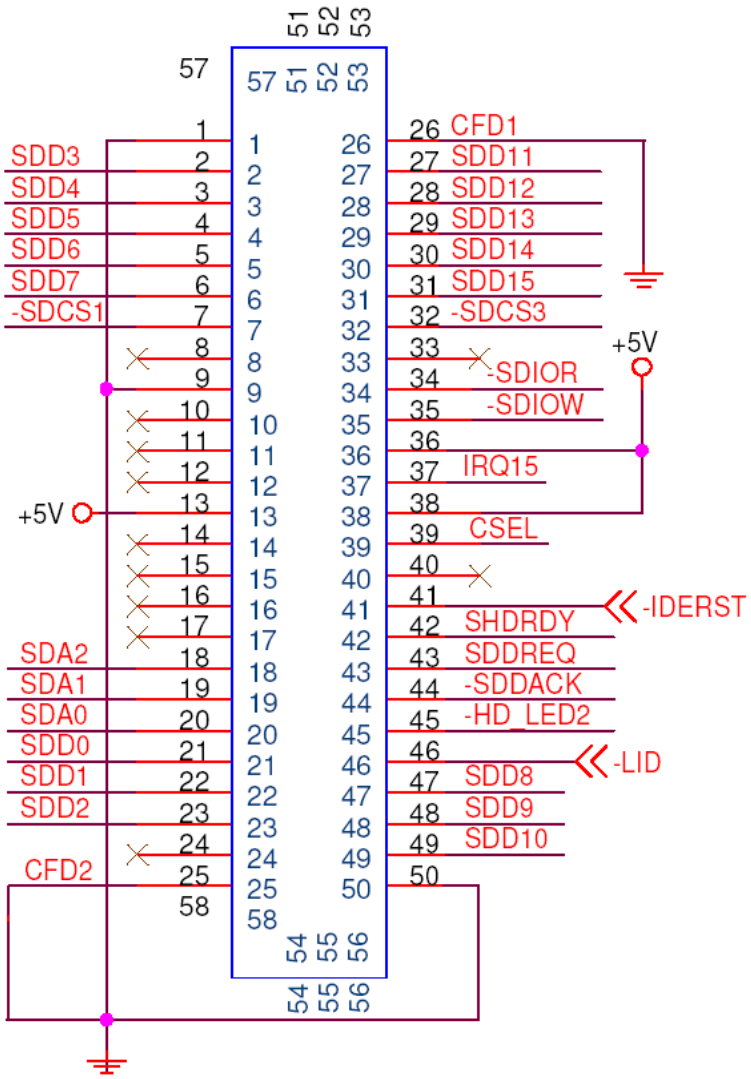



**Figure 4-5: CF Card Socket Location**

| PIN NO. | DESCRIPTION | PIN NO. | DESCRIPTION |
|---|---|---|---|
| 1 | GROUND | 26 | VCC-IN CHECK1 |
| 2 | DATA 3 | 27 | DATA 11 |
| 3 | DATA 4 | 28 | DATA 12 |
| 4 | DATA 5 | 29 | DATA 13 |
| 5 | DATA 6 | 30 | DATA 14 |
| 6 | DATA 7 | 31 | DATA 15 |

| | | | |
|---|---|---|---|
| 7 | HDC_CS0# | 32 | HDC_CS1 |
| 8 | N/C | 33 | N/C |
| 9 | GROUND | 34 | IOR# |
| 10 | N/C | 35 | IOW# |
| 11 | N/C | 36 | VCC_COM |
| 12 | N/C | 37 | IRQ15 |
| 13 | VCC_COM | 38 | VCC_COM |
| 14 | N/C | 39 | CSEL |
| 15 | N/C | 40 | N/C |
| 16 | N/C | 41 | HDD_RESET |
| 17 | N/C | 42 | IORDY |
| 18 | SA2 | 43 | SDREQ |
| 19 | SA1 | 44 | SDACK# |
| 20 | SA0 | 45 | HDD_ACTIVE# |
| 21 | DATA 0 | 46 | 66DET |
| 22 | DATA 1 | 47 | DATA 8 |
| 23 | DATA 2 | 48 | DATA 9 |
| 24 | N/C | 49 | DATA 10 |
| 25 | VCC-IN CHECK2 | 50 | GROUND |

**Table 4-5: CF Card Socket Pinouts**

### 4.2.4 Digital Input/Output Connector

**CN Label:** **DIO1**

**CN Type:** 10-pin header (2x5)

**CN Location:** See **Figure 4-6**

**CN Pinouts:** See **Table 4-6**

The DIO connector is managed through a Super I/O chip. The DIO connector pins are user programmable. The digital IO port of PCISA-9102 is 5 V CMOS level.

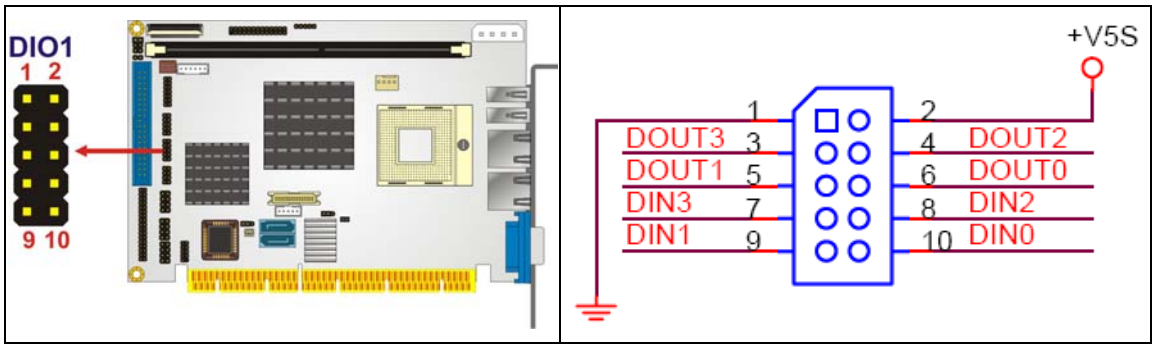



**Figure 4-6: GPIO Connector Location**

| PIN NO. | DESCRIPTION | PIN NO. | DESCRIPTION |
|---|---|---|---|
| 1 | GND | 2 | VCC |
| 3 | OUTPUT 3 | 4 | OUTPUT 2 |
| 5 | OUTPUT 1 | 6 | OUTPUT 0 |
| 7 | INPUT 3 | 8 | INPUT 2 |
| 9 | INPUT 1 | 10 | INPUT 0 |

**Table 4-6: GPIO Connector Pinouts**

### 4.2.5 Fan Connector

**CN Label:** **CPU_FAN1**

**CN Type:** 4-pin wafer connector (1x4)

**CN Location:** See **Figure 4-7**

**CN Pinouts:** See **Table 4-7**

The cooling fan connector provides a 12V, 500mA current to a CPU cooling fan. The connector has a "rotation" pin to get rotation signals from fans and notify the system so the system BIOS can recognize the fan speed. Please note that only specified fans can issue the rotation signals.

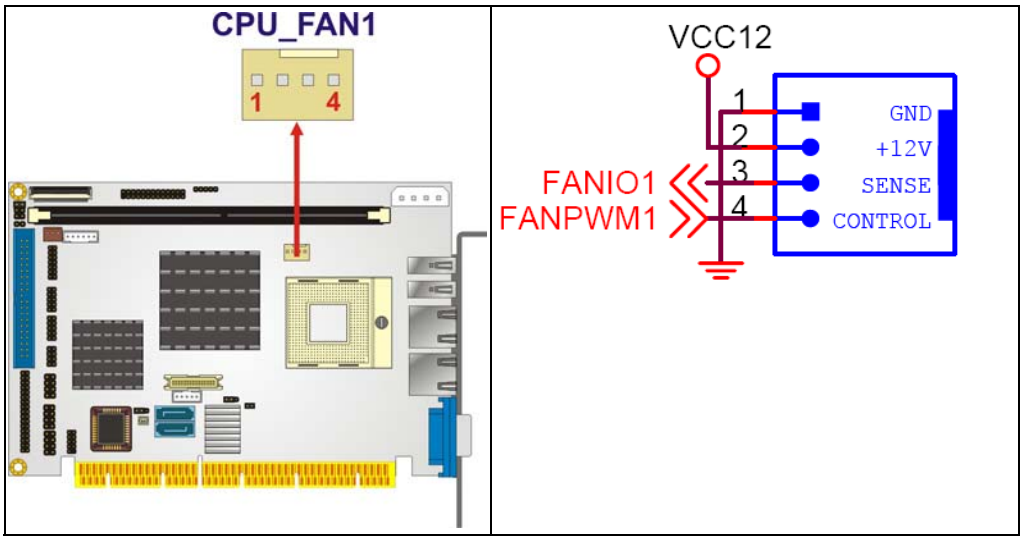



**Figure 4-7: Fan Connector Locations**

| PIN NO. | DESCRIPTION |
|---|---|
| 1 | GND |
| 2 | +12VCC |
| 3 | Rotation Signal |
| 4 | Control |

**Table 4-7: Fan Connector Pinouts**

### 4.2.6 Floppy Disk Connector (34-pin)

**CN Label:** **FDD1**

**CN Type:** 34-pin header (2x17)

**CN Location:** See **Figure 4-8**

**CN Pinouts:** See **Table 4-8**

The floppy disk connector is connected to a floppy disk drive.

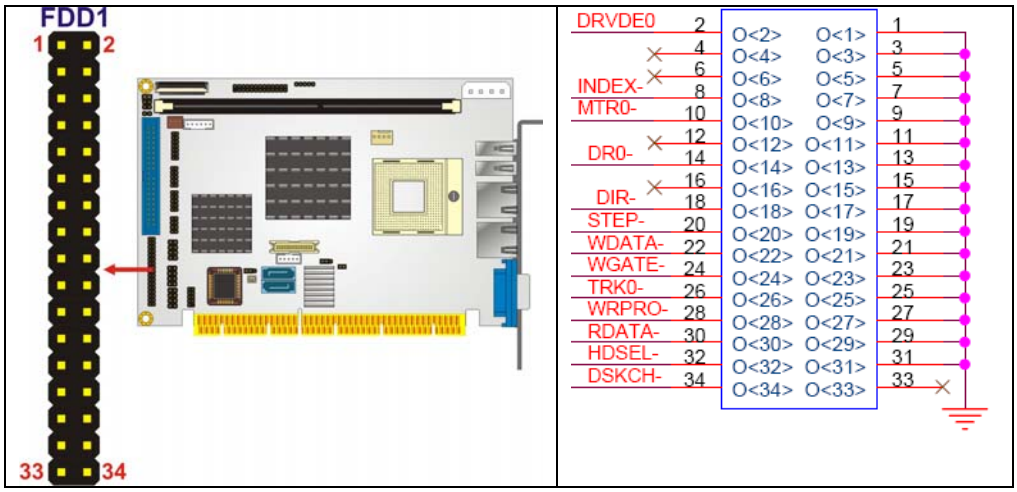



Figure 4-8: 34-pin FDD Connector Location

| PIN NO. | DESCRIPTION | PIN NO. | DESCRIPTION |
|---|---|---|---|
| 1 | GND | 2 | DRVDE0 |
| 3 | GND | 4 | N/C |
| 5 | GND | 6 | N/C |
| 7 | GND | 8 | INDEX# |
| 9 | GND | 10 | MTR0# |
| 11 | GND | 12 | N/C |
| 13 | GND | 14 | DR0# |
| 15 | GND | 16 | N/C |
| 17 | GND | 18 | DIR0# |
| 19 | GND | 20 | STEP# |
| 21 | GND | 22 | WDATA# |
| 23 | GND | 24 | WGATE# |
| 25 | GND | 26 | TRACK 0# |
| 27 | GND | 28 | WRPRO# |
| 29 | GND | 30 | READ DATA# |
| 31 | GND | 32 | HDSEL## |
| 33 | N/C | 34 | DSKCH# |

Table 4-8: 34-pin FDD Connector Pinouts

### 4.2.7 Front Panel Connector

| | |
|---|---|
| **CN Label:** | **F_PANEL1** |
| **CN Type:** | 8-pin header (2x4) |
| **CN Location:** | See **Figure 4-9** |
| **CN Pinouts:** | See **Table 4-9** |

The front panel connector connects to several external switches and indicators to monitor and control the motherboard. These indicators and switches include:

- Power LED
- Power button
- Reset button
- HDD LED

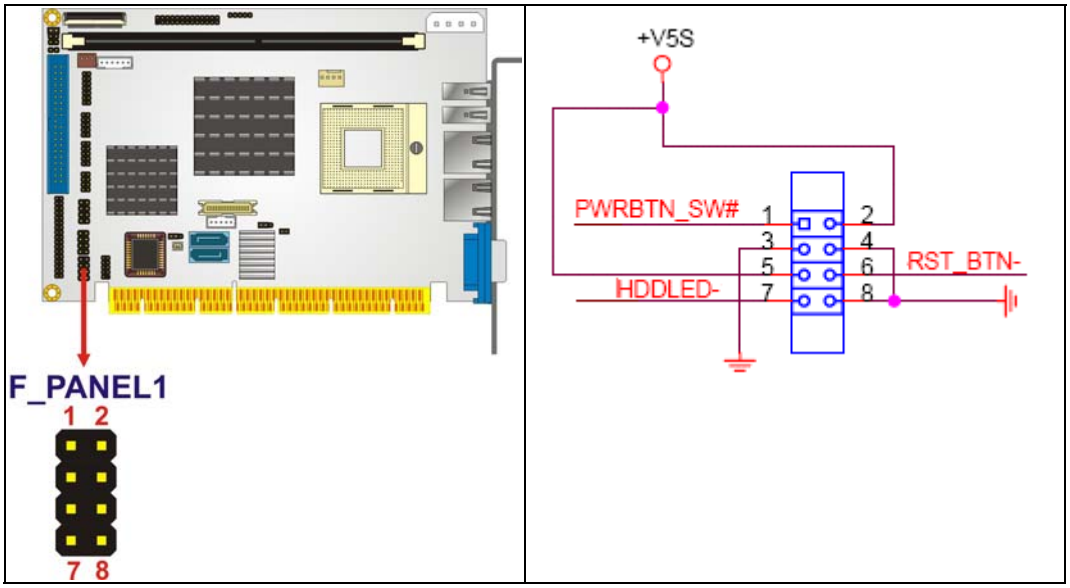



**Figure 4-9: Front Panel Connector Location**

| FUNCTION | PIN | DESCRIPTION | FUNCTION | PIN | DESCRIPTION |
|---|---|---|---|---|---|
| Power Button | 1 | PWR_BTN+ | Power LED | 2 | PWR_LED+ |
| | 3 | PWR_BTN- | | 4 | PWR_LED- |
| HDD LED | 5 | HDD_LED+ | Reset | 6 | RESET+ |
| | 7 | HDD_LED- | | 8 | RESET- |

**Table 4-9: Front Panel Connector Pinouts**

### 4.2.8 IDE Connector

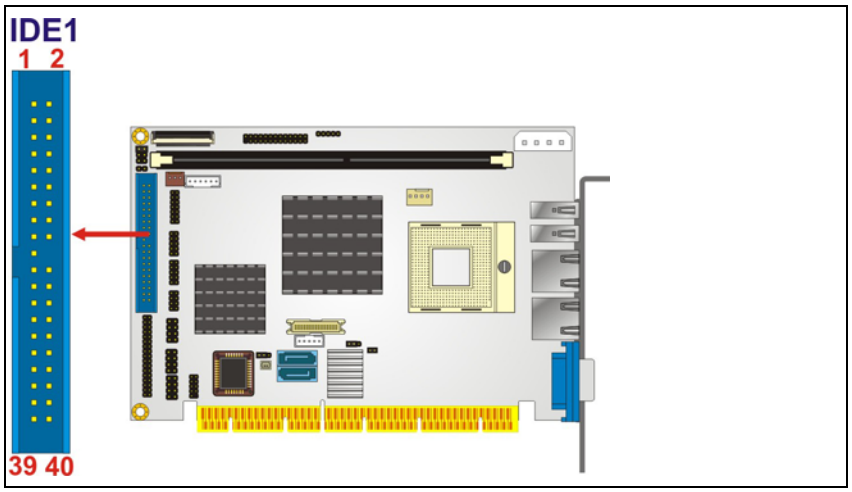
**CN Label:** **IDE1**

**CN Type:** 40-pin box header (2x20)

**CN Location:** See **Figure 4-10**

**CN Pinouts:** See **Table 4-10**

One primary 40-pin IDE device connector on the PCISA-9102 motherboard supports connectivity to ATA 100/66/33 IDE devices with data transfer rates up to 100 MB/s.



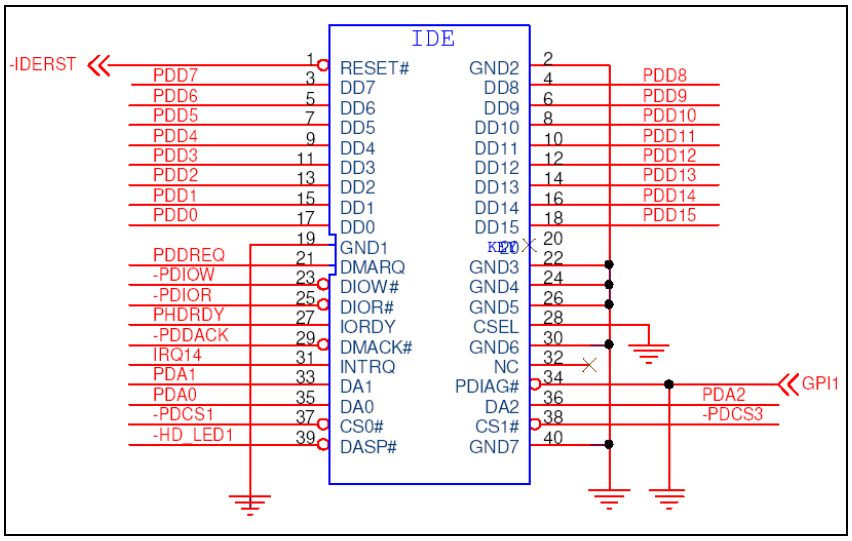



**Figure 4-10: IDE Device Connector Location**

| PIN NO. | DESCRIPTION | PIN NO. | DESCRIPTION |
|---|---|---|---|
| 1 | RESET# | 2 | GND |
| 3 | DATA 7 | 4 | DATA 8 |
| 5 | DATA 6 | 6 | DATA 9 |
| 7 | DATA 5 | 8 | DATA 10 |
| 9 | DATA 4 | 10 | DATA 11 |
| 11 | DATA 3 | 12 | DATA 12 |
| 13 | DATA 2 | 14 | DATA 13 |
| 15 | DATA 1 | 16 | DATA 14 |
| 17 | DATA 0 | 18 | DATA 15 |
| 19 | GND | 20 | N/C |
| 21 | IDE DRQ | 22 | GND |
| 23 | IOW# | 24 | GND |
| 25 | IOR# | 26 | GND |
| 27 | IDE CHRDY | 28 | BALE – DEFAULT |
| 29 | IDE DACK | 30 | GND |
| 31 | INTERRUPT | 32 | N/C |
| 33 | SA1 | 34 | PDIAG# |
| 35 | SA0 | 36 | SA2 |
| 37 | HDC CS0# | 38 | HDC CS1# |

| PIN NO. | DESCRIPTION | PIN NO. | DESCRIPTION |
|---|---|---|---|
| 39 | HDD ACTIVE# | 40 | GND |

**Table 4-10: IDE Connector Pinouts**

### 4.2.9 Infrared Interface Connector

**CN Label:** **IR1**

**CN Type:** 5-pin header (1x5)

**CN Location:** See **Figure 4-11**

**CN Pinouts:** See **Table 4-11**

The infrared interface connector supports both Serial Infrared (SIR) and Amplitude Shift Key Infrared (ASKIR) interfaces.

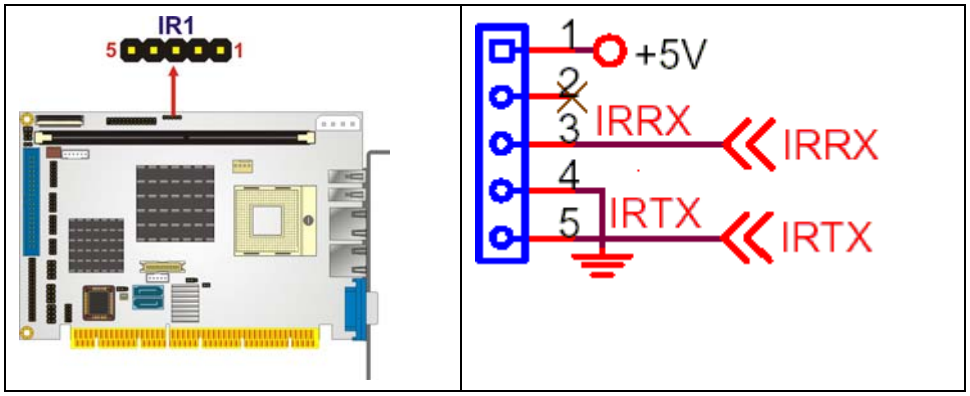



**Figure 4-11: Infrared Connector Pinout Locations**

| PIN NO. | DESCRIPTION |
|---|---|
| 1 | VCC |
| 2 | NC |
| 3 | IR-RX |
| 4 | GND |
| 5 | IR-TX |

**Table 4-11: Infrared Connector Pinouts**

### 4.2.10 Keyboard/Mouse Connector

| | |
|---|---|
| **CN Label:** | **KB_MS1** |
| **CN Type:** | 6-pin header (1x6) |
| **CN Location:** | See **Figure 4-12** |
| **CN Pinouts:** | See **Table 4-12** |

The keyboard/mouse connector can be connected to a standard PS/2 cable or PS/2 Y cable to add keyboard and mouse functionality to the system.

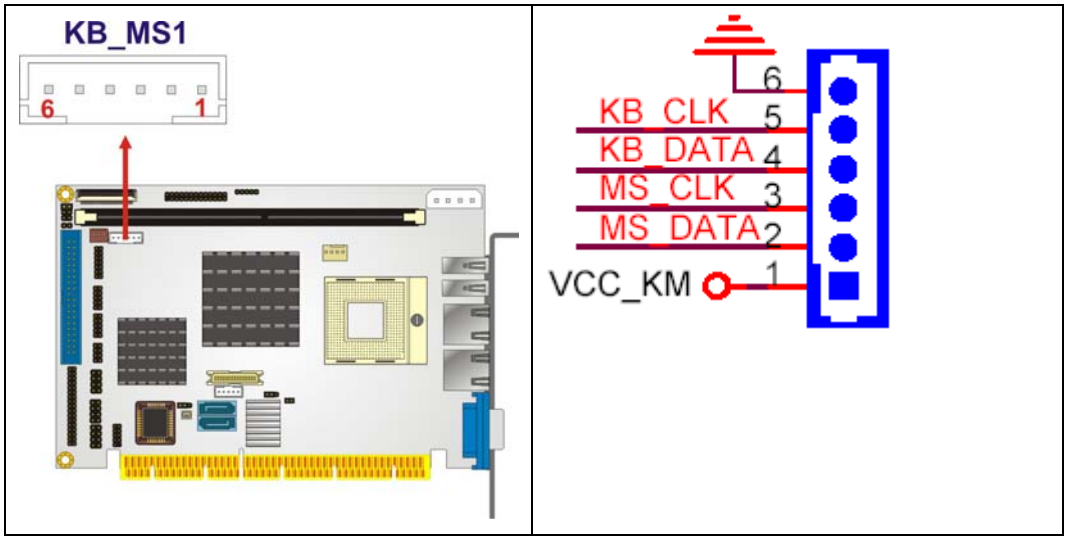



**Figure 4-12: Keyboard/Mouse Connector Location**

| PIN NO. | DESCRIPTION |
|---|---|
| 1 | VCC |
| 2 | MS DATA |
| 3 | MS CLK |
| 4 | KB DATA |
| 5 | KB CLK |
| 6 | KB GROUND |

**Table 4-12: Keyboard/Mouse Connector Pinouts**

### 4.2.11 LCD Backlight Connector

| | |
|---|---|
| **CN Label:** | **INVERTER1** |
| **CN Type:** | 5-pin wafer connector (1x5) |
| **CN Location:** | See **Figure 4-13** |
| **CN Pinouts:** | See **Table 4-13** |

The LCD backlight connector is for the LCD inverter connection.

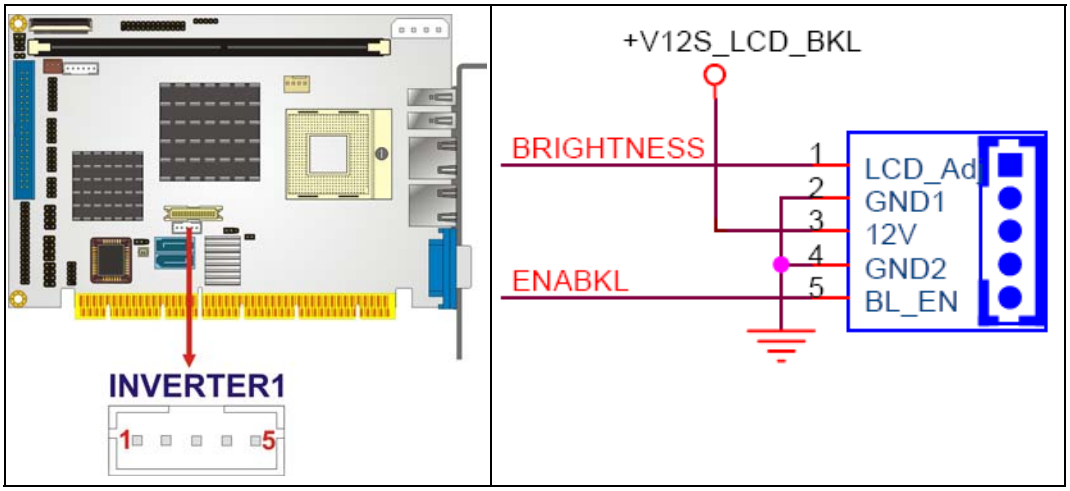



**Figure 4-13: LCD Backlight Connector Location**

| PIN NO. | DESCRIPTION |
|---|---|
| 1 | BRIGHTNESS |
| 2 | GND1 |
| 3 | 12V |
| 4 | GND2 |
| 5 | BL_EN |

**Table 4-13: LCD Backlight Connector Pinouts**

### 4.2.12 LVDS LCD connector

**CN Label:** **LVDS1**

**CN Type:** 30-pin crimp connector (2x15)

**CN Location:** See **Figure 4-14**

**CN Pinouts:** See **Table 4-14**

The connector supports one or two channel 24-bit LVDS panel.

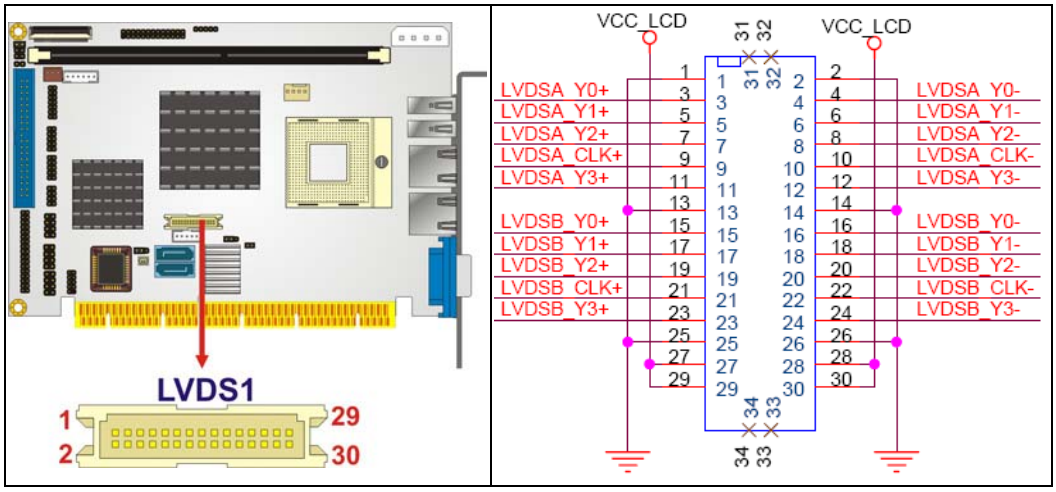



**Figure 4-14: LVDS LCD Connector Location**

| PIN NO. | DESCRIPTION | PIN NO. | DESCRIPTION |
|---|---|---|---|
| 1 | GND1 | 2 | GND2 |
| 3 | A_Y0 | 4 | A_Y0# |
| 5 | A_Y1 | 6 | A_Y1# |
| 7 | A_Y2 | 8 | A_Y2# |
| 9 | A_CK | 10 | A_CK# |
| 11 | A_Y3 | 12 | A_Y3# |
| 13 | GND3 | 14 | GND4 |
| 15 | B_Y0 | 16 | B_Y0# |
| 17 | B_Y1 | 18 | B_Y1# |
| 19 | B_Y2 | 20 | B_Y2# |
| 21 | B_CK | 22 | B_CK# |

| PIN NO. | DESCRIPTION | PIN NO. | DESCRIPTION |
|---|---|---|---|
| 23 | B_Y3 | 24 | B_Y3# |
| 25 | GND5 | 26 | GND6 |
| 27 | VCC_LCD | 28 | VCC_LCD |
| 29 | VCC_LCD | 30 | VCC_LCD |

**Table 4-14: LVDS LCD Connector Pinouts**

### 4.2.13 Parallel Port Connector

**CN Label:** **LPT1**

**CN Type:** 26-pin header (2x13)

**CN Location:** See **Figure 4-15**

**CN Pinouts:** See **Table 4-15**

The 26-pin parallel port connector connects to a parallel port connector interface or some other parallel port device such as a printer.

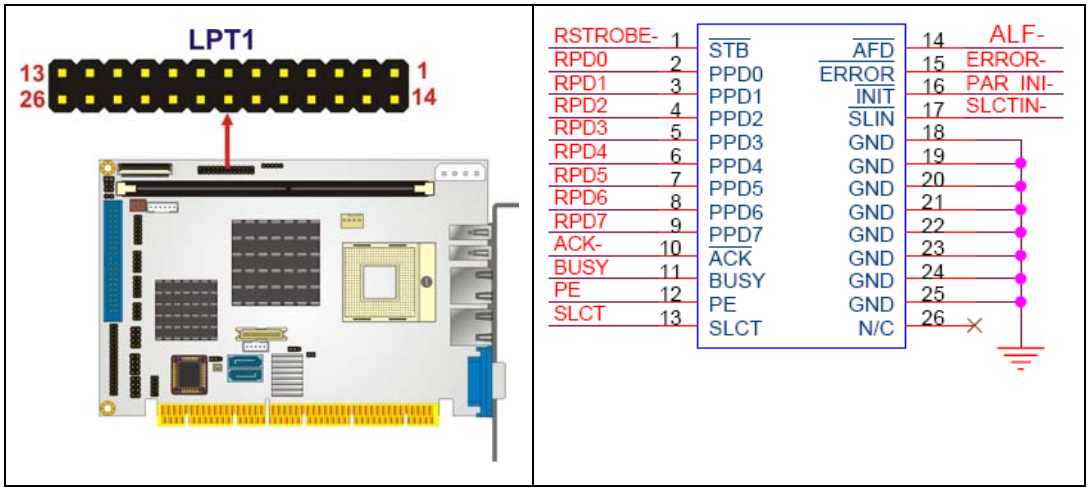



**Figure 4-15: Parallel Port Connector Location**

| PIN NO. | DESCRIPTION | PIN NO. | DESCRIPTION |
|---|---|---|---|
| 1 | STROBE# | 14 | AUTO FORM FEED # |
| 2 | DATA0 | 15 | ERROR# |
| 3 | DATA1 | 16 | INITIALIZE# |
| 4 | DATA2 | 17 | PRINTER SELECT LN# |
| 5 | DATA3 | 18 | GND |
| 6 | DATA4 | 19 | GND |
| 7 | DATA5 | 20 | GND |
| 8 | DATA6 | 21 | GND |
| 9 | DATA7 | 22 | GND |
| 10 | ACKNOWLEDGE# | 23 | GND |
| 11 | BUSY | 24 | GND |
| 12 | PAPER EMPTY | 25 | GND |
| 13 | PRINTER SELECT | | |

**Table 4-15: Parallel Port Connector Pinouts**

### 4.2.14 Power Connector

**CN Label:** **ATXPWR1**

**CN Type:** 4-pin connector (1x4)

**CN Location:** See **Figure 4-16**

**CN Pinouts:** See **Table 4-16**

The 4-pin power input connector is connected to a power supply.

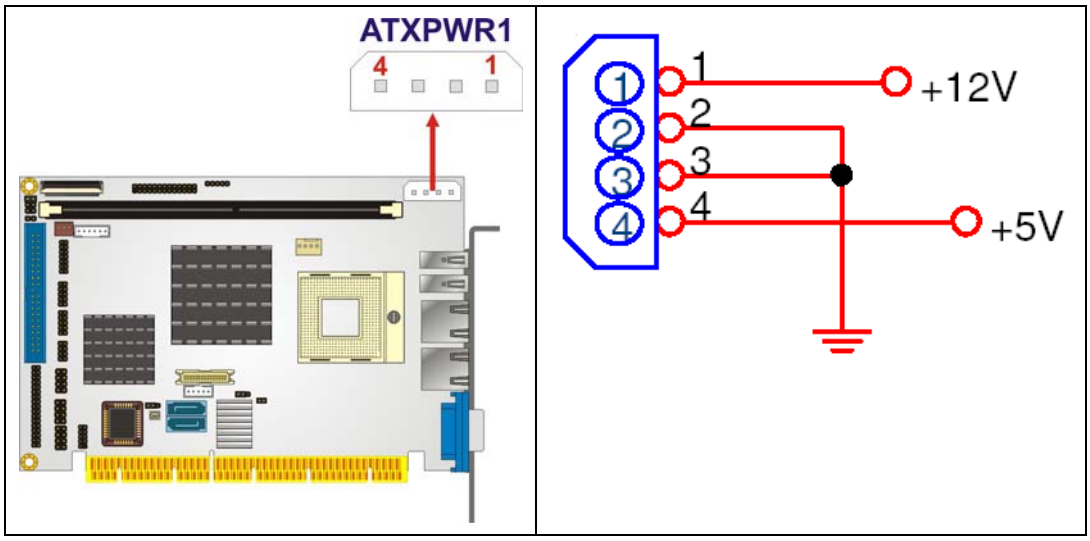



**Figure 4-16: Power Connector Location**

| PIN NO. | DESCRIPTION |
|---|---|
| 1 | +12V |
| 2 | GND |
| 3 | GND |
| 4 | +5V |

**Table 4-16: Power Connector Pinouts**

### 4.2.15 SATA Drive Connectors

**CN Label:** **SATA1** and **SATA2**

**CN Type:** 7-pin SATA drive connectors (1x7)

**CN Location:** See **Figure 4-17**

**CN Pinouts:** See **Table 4-17**

The two SATA drive connectors are connected to two SATA drives. SATA drives transfer data at speeds as high as 1.5 Gb/s.

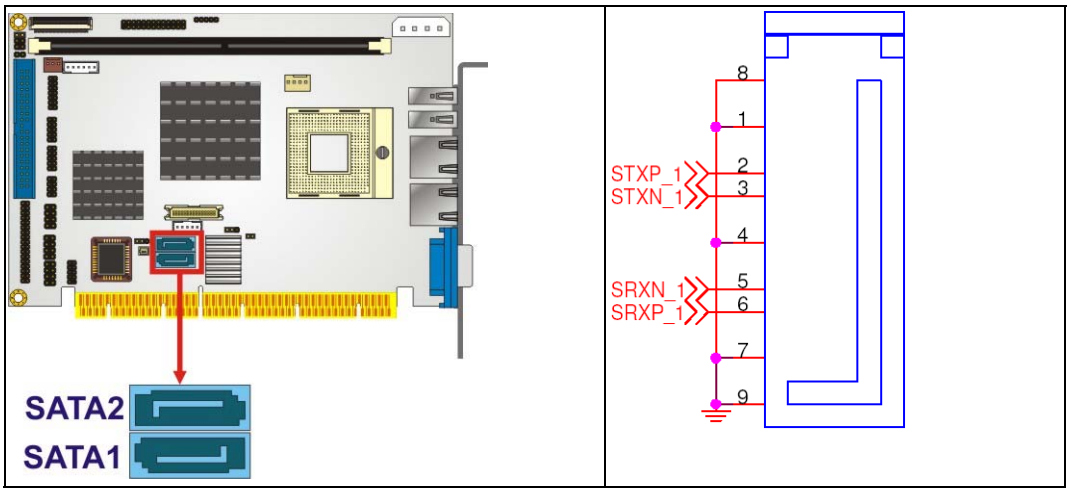



**Figure 4-17: SATA Drive Connector Locations**

| PIN NO. | DESCRIPTION |
|---|---|
| 1 | GND |
| 2 | TX+ |
| 3 | TX- |
| 4 | GND |
| 5 | RX- |
| 6 | RX+ |
| 7 | GND |

**Table 4-17: SATA Drive Connector Pinouts**

### 4.2.16 SDVO Connector

**CN Label:** **CN1**

**CN Type:** 47-pin connector (1x47)

**CN Location:** See **Figure 4-18**

**CN Pinouts:** See **Table 4-18**

The 47-pin SDVO (Serial Digital Video Out) connector supports additional video signaling interfaces.

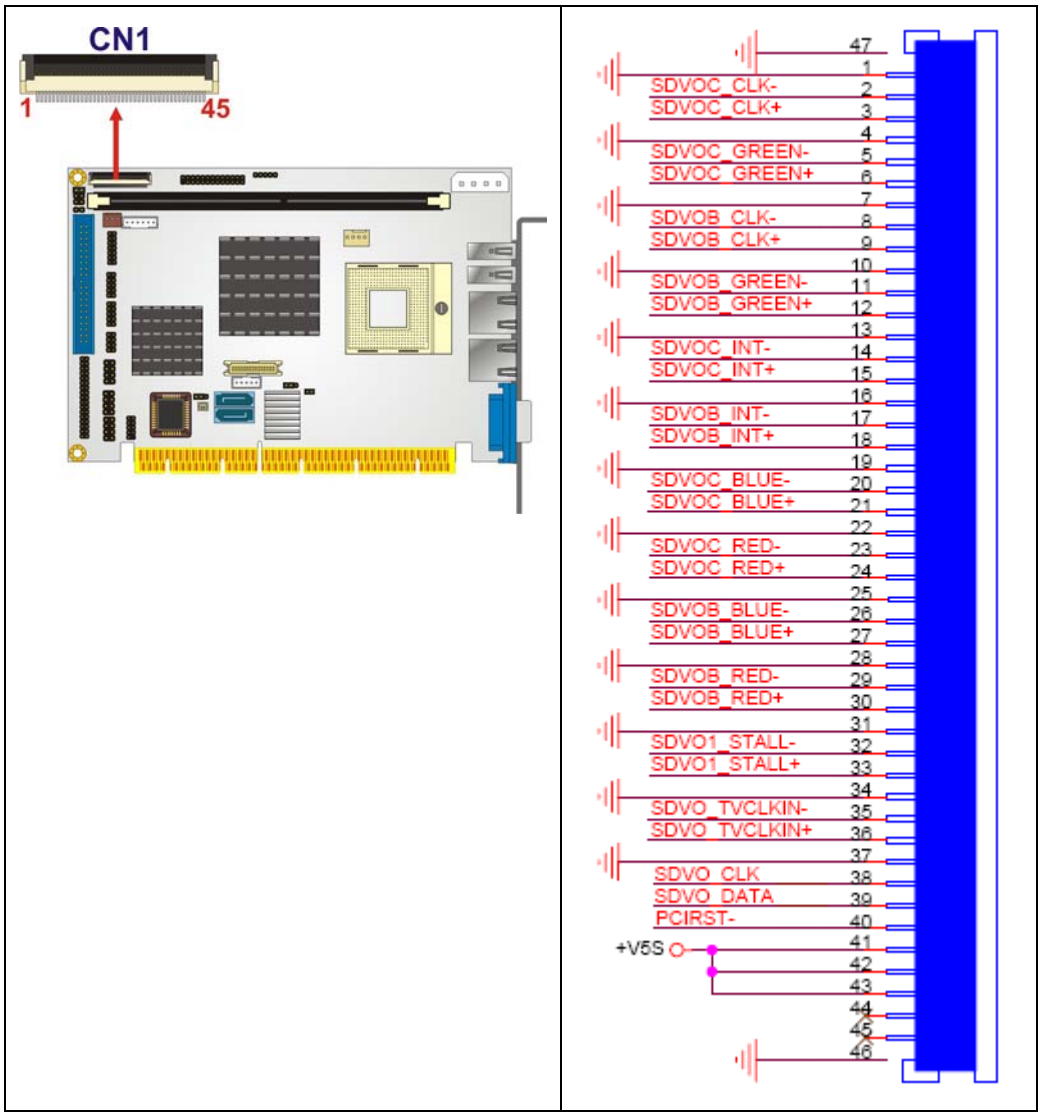



**Figure 4-18: SDVO Connector Pinout Locations**

| PIN NO. | DESCRIPTION | PIN NO. | DESCRIPTION |
|---|---|---|---|
| 1 | GROUND | 25 | GROUND |
| 2 | SDVOC_CLK- | 26 | SDVOB_BLUE- |
| 3 | SDVOC_CLK+ | 27 | SDVOB_BLUE+ |
| 4 | GROUND | 28 | GROUND |
| 5 | SDVOC_GREEN- | 29 | SDVOB_RED- |
| 6 | SDVOC_GREEN+ | 30 | SDVOB_RED+ |
| 7 | GROUND | 31 | GROUND |

| | | | |
|---|---|---|---|
| 8 | SDVOB_CLK- | 32 | SDVO1_STALL- |
| 9 | SDVOB_ CLK+ | 33 | SDVO1_STALL+ |
| 10 | GROUND | 34 | GROUND |
| 11 | SDVOB_GREEN- | 35 | SDVO_TVCLKIN- |
| 12 | SDVOB_GREEN+ | 36 | SDVO_TVCLKIN+ |
| 13 | GROUND | 37 | GROUND |
| 14 | SDVOC_INT+ | 38 | SDVO_CLK |
| 15 | SDVOC_INT+ | 39 | SDVO_DATA |
| 16 | GROUND | 40 | PCIRST |
| 17 | SDVOB_INT+ | 41 | +5VS |
| 18 | SDVOB_INT+ | 42 | +5VS |
| 19 | GROUND | 43 | +5VS |
| 20 | SDVOC_BLUE- | 44 | NC |
| 21 | SDVOC_BLUE+ | 45 | NC |
| 22 | GROUND | 46 | GROUND |
| 23 | SDVOC_RED- | 47 | GROUND |
| 24 | SDVOC_RED+ | | |

**Table 4-18: SDVO Connector Pinouts**

### 4.2.17 Serial Port Connector (COM 1, RS-232)

**CN Label:** **COM1**

**CN Type:** 10-pin header (2x5)

**CN Location:** See **Figure 4-19**

**CN Pinouts:** See **Table 4-19**

The 10-pin serial port connector provides a RS-232 serial communications channel. The COM 1 serial port connector can be connected to external RS-232 serial port devices.

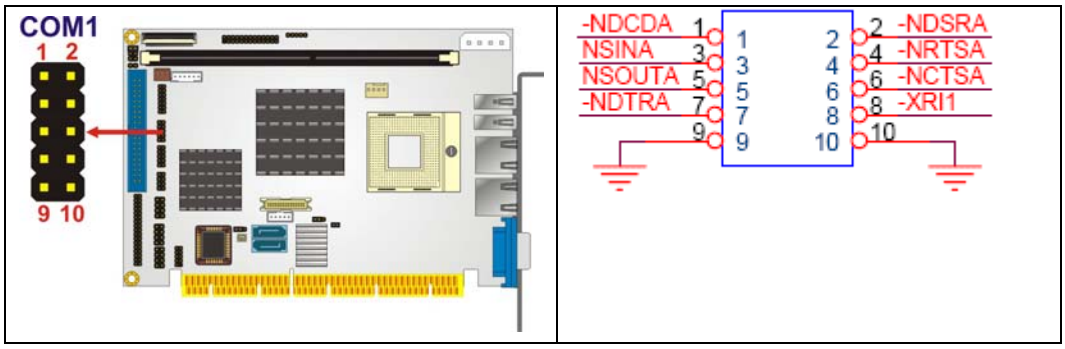



**Figure 4-19: RS-232 Connector Pinout Locations**

| PIN NO. | DESCRIPTION | PIN NO. | DESCRIPTION |
|---|---|---|---|
| 1 | Data Carrier Direct (DCD) | 2 | Data Set Ready (DSR) |
| 3 | Receive Data (RXD) | 4 | Request To Send (RTS) |
| 5 | Transmit Data (TXD) | 6 | Clear To Send (CTS) |
| 7 | Data Terminal Ready (DTR) | 8 | Ring Indicator (RI) |
| 9 | Ground (GND) | 10 | Ground (GND) |

**Table 4-19: RS-232 Connector Pinouts**

### 4.2.18 Serial Port Connector (COM 2, RS-232/422/485)

**CN Label:** **COM2**

**CN Type:** 14-pin header (2x7)

**CN Location:** See **Figure 4-20**

**CN Pinouts:** See **Table 4-20**

The serial ports connectors connect to RS-232/422/485 serial port device.

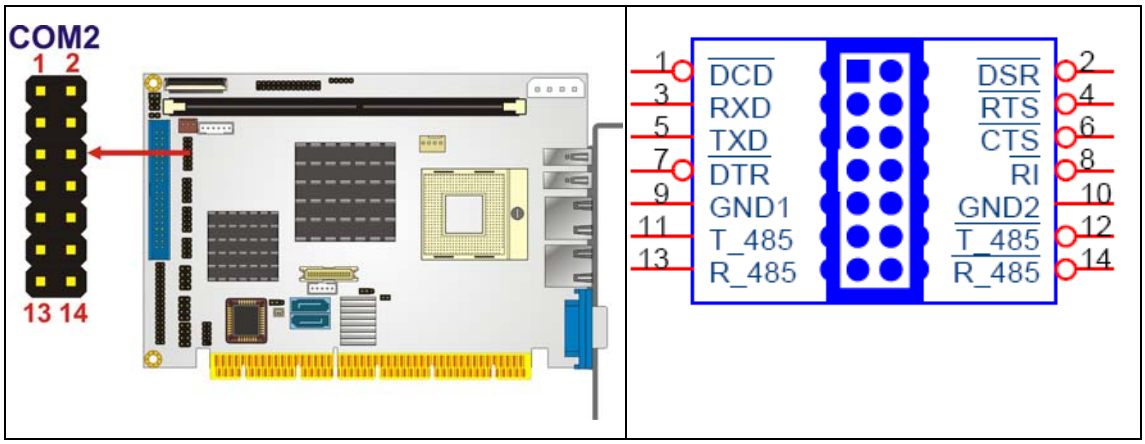



**Figure 4-20: 14-Pin Serial Port Connector Locations**

| PIN NO. | DESCRIPTION | PIN NO. | DESCRIPTION |
|---|---|---|---|
| 1 | DCD | 2 | DSR |
| 3 | RXD | 4 | RTS |
| 5 | TXD | 6 | CTS |
| 7 | DTR | 8 | RI |
| 9 | GND | 10 | GND |
| 11 | TXD 485+ | 12 | TXD 485# |
| 13 | RXD 485+ | 14 | RXD 485# |

**Table 4-20: COM 2 Pinouts**

### 4.2.19 Internal USB Connectors

**CN Label:** **USB01** and **USB23**

**CN Type:** 8-pin header (2x4)

**CN Location:** See **Figure 4-21**

**CN Pinouts:** See **Table 4-21**

One 2x4 pin connector provides connectivity to two USB 2.0 ports. The USB ports are used for I/O bus expansion.

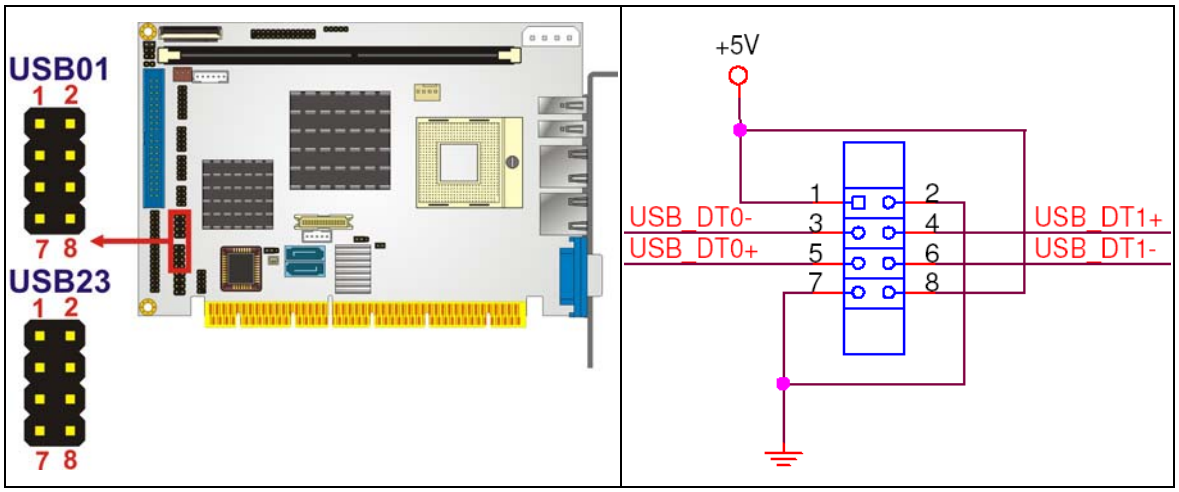



**Figure 4-21: Internal USB Connector Locations**

| PIN NO. | DESCRIPTION | PIN NO. | DESCRIPTION |
|---|---|---|---|
| 1 | VCC | 2 | GND |
| 3 | DATA- | 4 | DATA+ |
| 5 | DATA+ | 6 | DATA- |
| 7 | GND | 8 | VCC |

**Table 4-21: Internal USB Pinouts**

## 4.3 External Interface Connectors

The peripheral connectors on the back panel are connected to devices externally when the PCISA-9102 is installed in a chassis. The peripheral connectors on the rear panel are:

- 1 x CRT connector
- 2 x RJ-45 Ethernet connectors
- 2 x USB 2.0 connectors

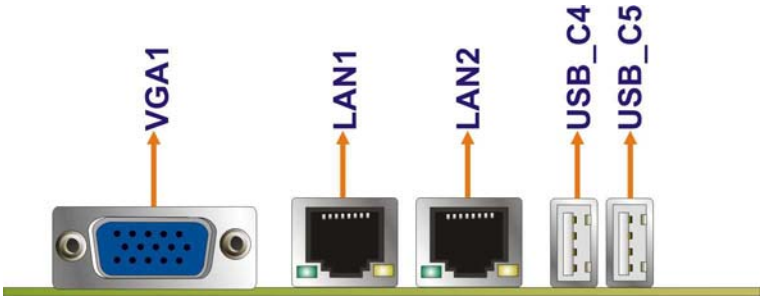



**Figure 4-22: PCISA-9102 External Interface Connectors**

### 4.3.1 CRT Connector

**CN Label:** **VGA1**

**CN Type:** 15-pin female connector

**CN Location:** See **Figure 4-22**

**CN Pinouts:** See **Table 4-22** and **Figure 4-23**

The standard 15-pin VGA connector connects to a CRT or LCD display monitor.

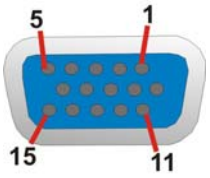



**Figure 4-23: VGA Connector**

| PIN NO. | DESCRIPTION | PIN NO. | DESCRIPTION |
|---|---|---|---|
| 1 | RED | 2 | GREEN |
| 3 | BLUE | 4 | N/C |
| 5 | GND | 6 | GND |
| 7 | GND | 8 | GND |
| 9 | VCC | 10 | GND |
| 11 | N/C | 12 | DDC DAT |
| 13 | HSYNC | 14 | VSYNC |
| 15 | DDC CLK | | |

**Table 4-22: VGA Connector Pinouts**

### 4.3.2 Ethernet Connectors

**CN Label:** **LAN1** and **LAN2**

**CN Type:** RJ-45

**CN Location:** See **Figure 4-22**

**CN Pinouts:** See **Table 4-23**

The PCISA-9102 is equipped with two built-in GbE Ethernet controllers. The controllers can connect to the LAN through two RJ-45 LAN connectors. There are two LEDs on the connector indicating the status of LAN. The pin assignments are listed in the following table:

| PIN | DESCRIPTION | PIN | DESCRIPTION |
|---|---|---|---|
| 1 | MDIA3- | 5 | MDIA1+ |
| 2 | MDIA3+ | 6 | MDIA2+ |
| 3 | MDIA2- | 7 | MDIA0- |
| 4 | MDIA1- | 8 | MDIA0+ |

**Table 4-23: LAN1 and LAN2 Pinouts**

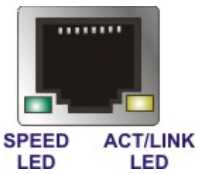



**Figure 4-24: RJ-45 Ethernet Connector**

The RJ-45 Ethernet connector has two status LEDs, one green and one yellow. The green LED indicates activity on the port and the yellow LED indicates the port is linked. See **Table 4-24**.

| SPEED LED | | ACT/LINK LED | |
|---|---|---|---|
| **STATUS** | **DESCRIPTION** | **STATUS** | **DESCRIPTION** |
| OFF | 10Mbps connection | OFF | No link |
| GREEN | 100Mbps connection | YELLOW | Linked |
| ORANGE | 1Gbps connection | BLINKING | Data Activity |

**Table 4-24: RJ-45 Ethernet Connector LEDs**

### 4.3.3 USB Connector

**CN Label:** **USB_C4** and **USB_C5**

**CN Type:** USB port

**CN Location:** See **Figure 4-22**

**CN Pinouts:** See **Table 4-25**

USB devices can be connected directly to the USB connectors on the rear panel.

| PIN NO. | DESCRIPTION |
|---|---|
| 1 | VCC |
| 2 | DATA- |
| 3 | DATA+ |
| 4 | GND |

**Table 4-25: External USB Connector Pinouts**

Chapter

5

# Installation

## 5.1 Anti-static Precautions

**WARNING:**

Failure to take ESD precautions during the installation of the PCISA-9102 may result in permanent damage to the PCISA-9102 and severe injury to the user.

Electrostatic discharge (ESD) can cause serious damage to electronic components, including the PCISA-9102. Dry climates are especially susceptible to ESD. It is therefore critical that whenever the PCISA-9102, or any other electrical component is handled, the following anti-static precautions are strictly adhered to.

- ***Wear an anti-static wristband***: Wearing a simple anti-static wristband can help to prevent ESD from damaging the board.
- ***Self-grounding***: Before handling the board touch any grounded conducting material. During the time the board is handled, frequently touch any conducting materials that are connected to the ground.
- ***Use an anti-static pad***: When configuring the PCISA-9102, place it on an antic-static pad. This reduces the possibility of ESD damaging the PCISA-9102.
- ***Only handle the edges of the PCB***: When handling the PCB, hold the PCB by the edges.

## 5.2 Installation Considerations

**NOTE:**

The following installation notices and installation considerations should be read and understood before the PCISA-9102 is installed. All installation notices pertaining to the installation of the PCISA-9102 should be strictly adhered to. Failing to adhere to these precautions may lead to severe damage of the PCISA-9102 and injury to the person installing the motherboard.

### 5.2.1 Installation Notices

**WARNING:**

The installation instructions described in this manual should be carefully followed in order to prevent damage to the PCISA-9102, PCISA-9102 components and injury to the user.

Before and during the installation please **DO** the following:

- **Read the user manual**:
  - The user manual provides a complete description of the PCISA-9102 installation instructions and configuration options.
- **Wear an electrostatic discharge cuff (ESD)**:
  - Electronic components are easily damaged by ESD. Wearing an ESD cuff removes ESD from the body and helps prevent ESD damage.
- **Place the PCISA-9102 on an antistatic pad**:
  - When installing or configuring the motherboard, place it on an antistatic pad. This helps to prevent potential ESD damage.
- **Turn all power to the PCISA-9102 off**:

- When working with the PCISA-9102, make sure that it is disconnected from all power supplies and that no electricity is being fed into the system.

Before and during the installation of the PCISA-9102 **DO NOT:**

- Remove any of the stickers on the PCB board. These stickers are required for warranty validation.
- Use the product before verifying all the cables and power connectors are properly connected.
- Allow screws to come in contact with the PCB circuit, connector pins, or its components.

### 5.2.2 Installation Checklist

The following checklist is provided to ensure the PCISA-9102 is properly installed.

- All the items in the packing list are present
- The CPU is installed
- The CPU cooling kit is properly installed
- A compatible memory module is properly inserted into the slot
- The jumpers have been properly configured
- The PCISA-9102 is inserted into a chassis with adequate ventilation
- The correct power supply is being used
- The following devices are properly connected
  - IDE device
  - SATA drives
  - Power supply
  - USB cable
  - Parallel port cable
  - Serial port cable
- The following external peripheral devices are properly connected to the chassis:
  - VGA screen
  - RJ-45 Ethernet cable
  - USB devices

## 5.3 CPU, CPU Cooling Kit and DIMM Installation

**WARNING:**

A CPU should never be turned on without the specified cooling kit being installed. If the cooling kit (heat sink and fan) is not properly installed and the system turned on, permanent damage to the CPU, PCISA-9102 and other electronic components attached to the system may be incurred. Running a CPU without a cooling kit may also result in injury to the user.

The CPU, CPU cooling kit and DIMM are the most critical components of the PCISA-9102. If one of these component is not installed the PCISA-9102 cannot run.

### 5.3.1 Socket 479 CPU Installation

**WARNING:**

CPUs are expensive and sensitive components. When installing the CPU please be careful not to damage it in anyway. Make sure the CPU is installed properly and ensure the correct cooling kit is properly installed.

To install a Socket 479 CPU onto the PCISA-9102, follow the steps below:

**WARNING:**

When handling the CPU, only hold it on the sides. DO NOT touch the pins at the bottom of the CPU.

**Step 1:** **Unlock the CPU retention screw.** When shipped, the retention screw of the

CPU socket should be in the unlocked position. If it is not in the unlocked position, use a screwdriver to unlock the screw. See **Figure 5-1**.

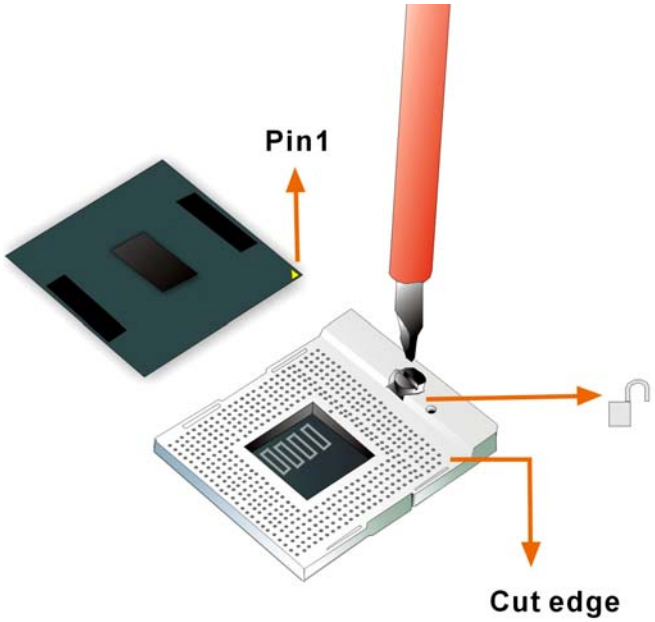



**Figure 5-1: Make sure the CPU socket retention screw is unlocked**

**Step 2:** **Inspect the CPU socket.** Make sure there are no bent pins and make sure the socket contacts are free of foreign material. If any debris is found, remove it with compressed air.

**Step 3:** **Correctly Orientate the CPU**. Make sure the IHS (integrated heat sink) side is facing upwards.

**Step 4:** **Correctly position the CPU.** Match the Pin 1 mark with the cut edge on the CPU socket. See **Figure 5-1**.

**Step 5:** **Align the CPU pins.** Carefully align the CPU pins with the holes in the CPU socket.

**Step 6:** **Insert the CPU.** Gently insert the CPU into the socket. If the CPU pins are properly aligned, the CPU should slide into the CPU socket smoothly.

**Step 7:** **Lock the retention screw.** Rotate the retention screw into the locked position. See **Figure 5-2**.

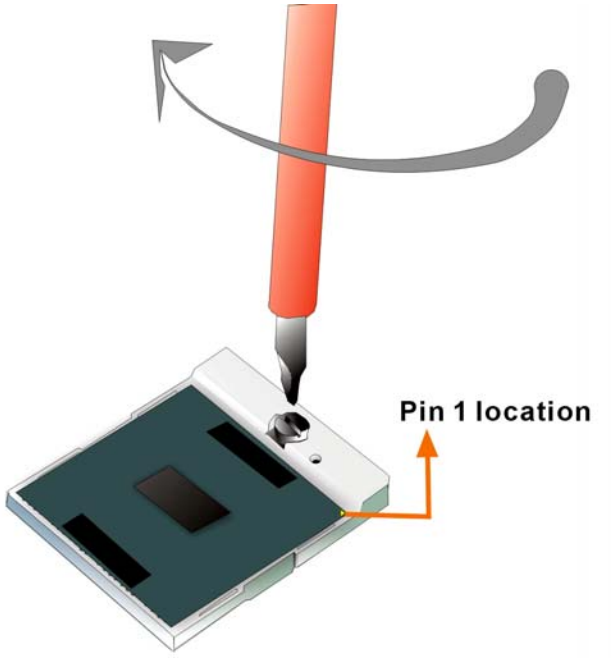



**Figure 5-2: Lock the CPU Socket Retention Screw**

### 5.3.2 Cooling Kit CF-479B-RS Installation

**Figure 5-3: IEI CF-479B-RS Cooling Kit**

An IEI Socket 479 CPU cooling kit can be purchased separately. The cooling kit comprises a CPU heat sink and a cooling fan.

**WARNING:**

Do not wipe off (accidentally or otherwise) the pre-sprayed layer of thermal paste on the bottom of the CF-479B-RS heat sink. The thermal paste between the CPU and the heat sink is important for optimum heat dissipation.

To install the CF-479B-RS cooling kit, please follow the steps below.

**Step 1:** **Place the cooling kit onto the CPU**. Make sure the CPU cooling fan cable can be properly routed when the cooling kit is installed.

**Step 2:** **Properly align the cooling kit**. Make sure its four spring screw fasteners can pass through the pre-drilled holes on the PCB.

**Step 3:** **Secure the cooling kit**. From the solder side of the PCB, align the support bracket to the screw threads on heat sink that were inserted through the PCB holes. (See **Figure 5-4**)

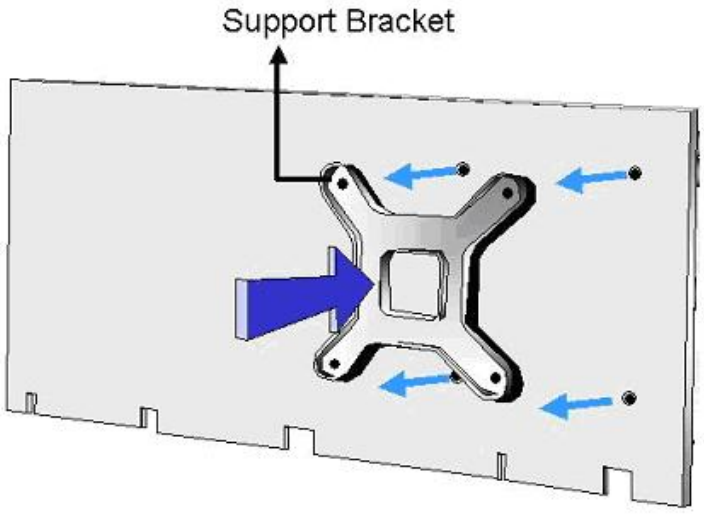



**Figure 5-4: Cooling Kit Support Bracket**

**Step 4:** **Tighten the screws**. Use a screwdriver to tighten the four screws. Tighten each nut a few turns at a time and do not over-tighten the screws.

**Step 5:** **Connect the fan cable**. Connect the cooling kit fan cable to the fan connector on the motherboard. Carefully route the cable and avoid heat generating chips and fan blades. See **Figure 5-5**.

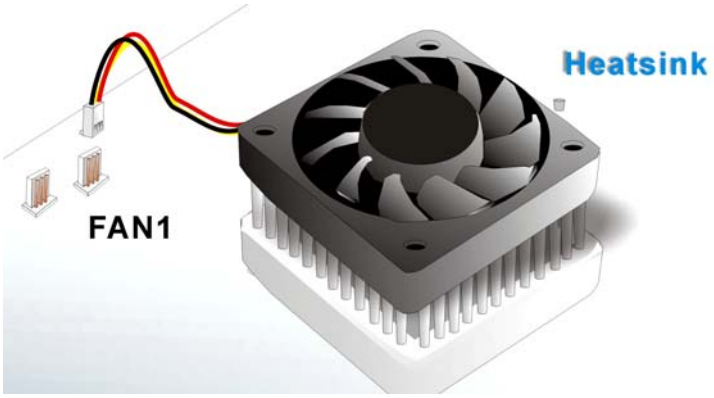



**Figure 5-5: Connect the cooling fan cable**

### 5.3.3 DIMM Installation

**WARNING:**

Only DDR2 memory module can be installed on the PCISA-9102. Do not install DDR memory modules. If a DDR memory module is installed on the PCISA-9102, the PCISA-9102 may be irreparably damaged. Please make sure the purchased DIMM complies with the memory specifications of the PCISA-9102. DIMM specifications compliant with the PCISA-9102 are listed in **Chapter 2**.

**CAUTION:**

The **DIMM1** socket must be installed with one DDR2 DIMM to enable the PCISA-9102 to boot-up properly.

To install a DIMM into a DIMM socket, please follow the steps below and refer to **Figure 5-6**.

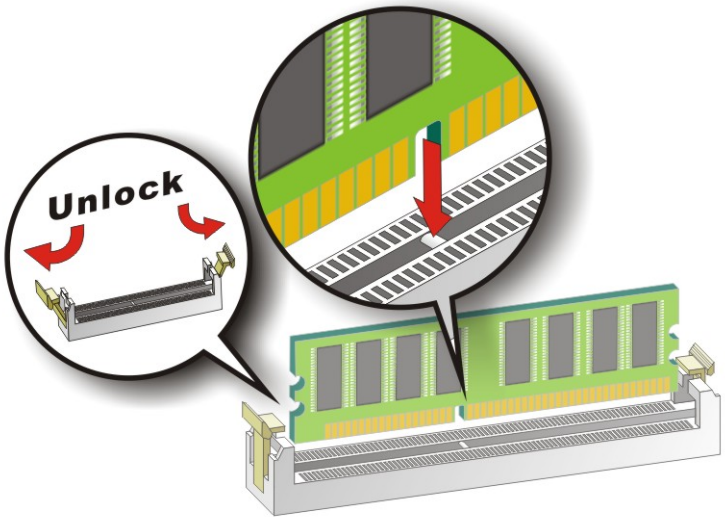



**Figure 5-6: Installing a DIMM**

**Step 1:** **Open the DIMM socket handles**. The DIMM socket has two handles that secure the DIMM into the socket. Before the DIMM can be inserted into the socket, the handles must be opened. See **Figure 5-6**.

**Step 2:** **Align the DIMM with the socket**. The DIMM must be oriented in such a way that the notch in the middle of the DIMM must be aligned with the plastic bridge in the socket. See **Figure 5-6**.

**Step 3:** **Insert the DIMM**. Once properly aligned, the DIMM can be inserted into the socket. As the DIMM is inserted, the white handles on the side of the socket will

close automatically and secure the DIMM to the socket. See **Figure 5-6**.

**Step 4:** **Removing a DIMM**. To remove a DIMM, push both handles outward. The memory module is ejected by a mechanism in the socket.

## 5.4 Jumper Settings

**NOTE:**

A jumper is a metal bridge used to close an electrical circuit. It consists of two or three metal pins and a small metal clip (often protected by a plastic cover) that slides over the pins to connect them. To CLOSE/SHORT a jumper means connecting the pins of the jumper with the plastic clip and to OPEN a jumper means removing the plastic clip from a jumper.

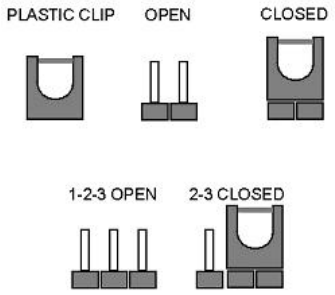



**Figure 5-7: Jumper Locations**

Before the PCISA-9102 is installed in the system, the jumpers must be set in accordance with the desired configuration. The jumpers on the PCISA-9102 are listed in **Table 5-1**.

| Description | Label | Type |
|---|---|---|
| CF card setup | JCF1 | 2-pin header |
| CPU frequency selection | J_FREQ1 | 3-pin header |
| Clear CMOS | J_CMOS1 | 3-pin header |
| COM 2 function selection | JP1 | 6-pn header |
| LVDS LCD voltage selection | J_VLVDS1 | 3-pin header |
| LVDS LCD resolution selection | J_LCD_TYPE1 | 8-pin header |

**Table 5-1: Jumpers**

### 5.4.1 AT Power Select Jumper Settings

| | |
|---|---|
| **Jumper Label:** | **ATXCTL1** |
| **Jumper Type:** | 3-pin wafer |
| **Jumper Settings:** | See **Table 5-2** |
| **Jumper Location:** | See Figure 5-8 |

The AT Power Select jumper specifies the systems power mode as AT or ATX. AT Power When the ATXCTL1 connector is set to ATX mode (open), please refer to **Section 4.2.1** for the pinouts of this ATX power enable connector. Select jumper settings are shown in **Table 5-2**.

| AT Power Select | Description | |
|---|---|---|
| Short 1-2 | Use AT power | Default |
| Open | Use ATX power | |

**Table 5-2: AT Power Select Jumper Settings**

The location of the AT Power Select jumper is shown in Figure 5-8 below.

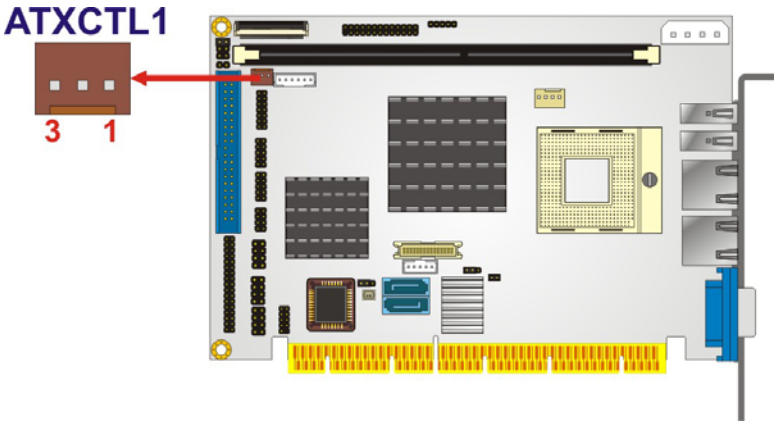



**Figure 5-8: AT Power Select Jumper Location**

### 5.4.2 CF Card Setup

| | |
|---|---|
| **Jumper Label:** | **JCF1** |
| **Jumper Type:** | 2-pin header |
| **Jumper Settings:** | See **Table 5-3** |
| **Jumper Location:** | See **Figure 5-9** |

The CF Card Setup jumper sets the CF Type I card or CF Type II cards as either the slave device or the master device. CF Card Setup jumper settings are shown in **Table 5-3**.

| CF Card Setup | Description | |
|---|---|---|
| Open | Slave | Default |
| Closed | Master | |

**Table 5-3: CF Card Setup Jumper Settings**

The CF Card Setup jumper location is shown in **Figure 5-9**.

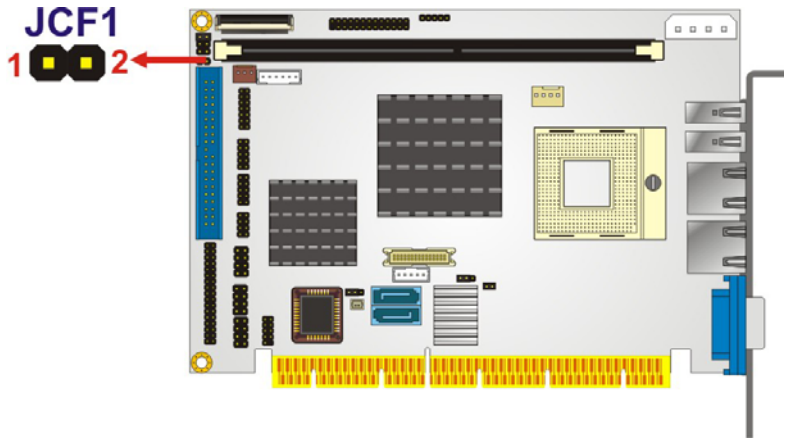



**Figure 5-9: CF Card Setup Jumper Location**

### 5.4.3 Clear CMOS Jumper

| | |
|---|---|
| **Jumper Label:** | **J_CMOS1** |
| **Jumper Type:** | 3-pin header |
| **Jumper Settings:** | See **Table 5-4** |
| **Jumper Location:** | See **Figure 5-10** |

If the PCISA-9102 fails to boot due to improper BIOS settings, the clear CMOS jumper clears the CMOS data and resets the system BIOS information. To do this, use the jumper cap to close pins 2 and 3 for a few seconds then reinstall the jumper clip back to pins 1 and 2.

If the “CMOS Settings Wrong” message is displayed during the boot up process, the fault may be corrected by pressing the F1 to enter the CMOS Setup menu. Do one of the following:

- Enter the correct CMOS setting
- Load Optimal Defaults
- Load Failsafe Defaults.

After having done one of the above, save the changes and exit the CMOS Setup menu.

The clear CMOS jumper settings are shown in **Table 5-4**.

| Clear CMOS | Description | |
|---|---|---|
| Short 1 - 2 | Keep CMOS Setup | Default |
| Short 2 - 3 | Clear CMOS Setup | |

**Table 5-4: Clear CMOS Jumper Settings**

The location of the clear CMOS jumper is shown in **Figure 5-10** below.

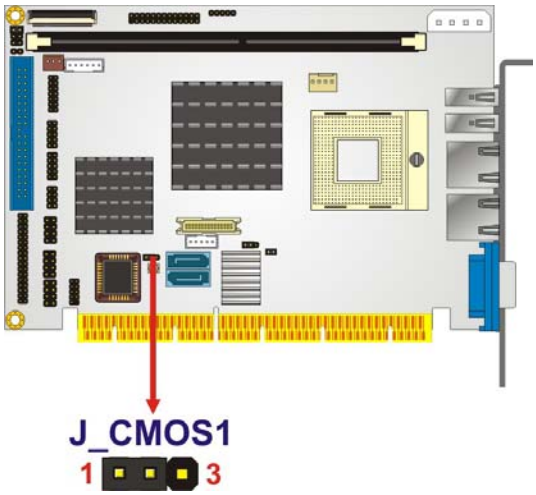



**Figure 5-10: Clear CMOS Jumper**

### 5.4.4 COM 2 Function Select Jumper

| | |
|---|---|
| **Jumper Label:** | **JP1** |
| **Jumper Type:** | 6-pin header |
| **Jumper Settings:** | See **Table 5-5** |
| **Jumper Location:** | See **Figure 5-11** |

The COM 2 Function Select jumper sets the communication protocol used by the second serial communications port (COM 2) as RS-232, RS-422 or RS-485. The COM 2 Function Select settings are shown in **Table 5-5**.

| COM 2 Function Select | Description | |
|---|---|---|
| Short 1-2 | RS-232 | Default |
| Short 3-4 | RS-422 | |
| Short 5-6 | RS-485 | |

**Table 5-5: COM 2 Function Select Jumper Settings**

The COM 2 Function Select jumper location is shown in **Figure 5-11**.

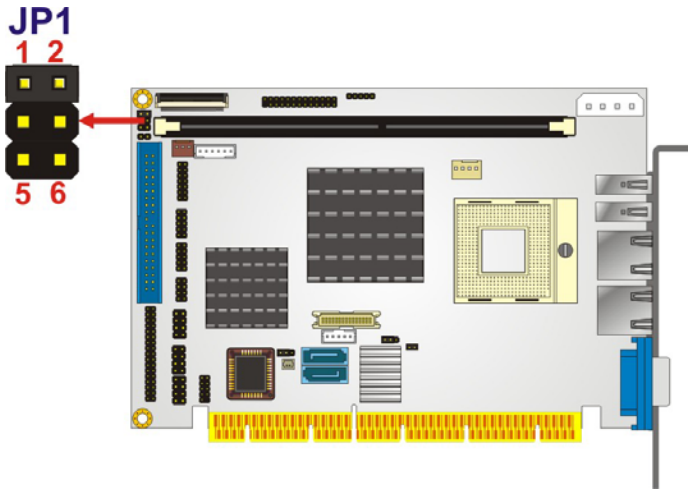



**Figure 5-11: COM 2 Function Select Jumper Location**

### 5.4.5 CPU Frequency Selection

| | |
|---|---|
| **Jumper Label:** | **J_FREQ1** |
| **Jumper Type:** | 3-pin header |
| **Jumper Settings:** | See Table 5-6 |
| **Jumper Location:** | See **Figure 5-12** |

The CPU Frequency setup jumper enables a user to select the frequency of the CPU on the PCISA-9102. The FSB CPU Frequency jumper settings are shown in Table 5-6.

| FSB Setup | Description | |
|---|---|---|
| Short 1 – 2 | 400 MHz | Default |
| Short 2 – 3 | 533 MHz | |

**Table 5-6: CPU Frequency Setup Jumper Settings**

The location of the CPU Frequency Setup jumper is shown in **Figure 5-12** below.

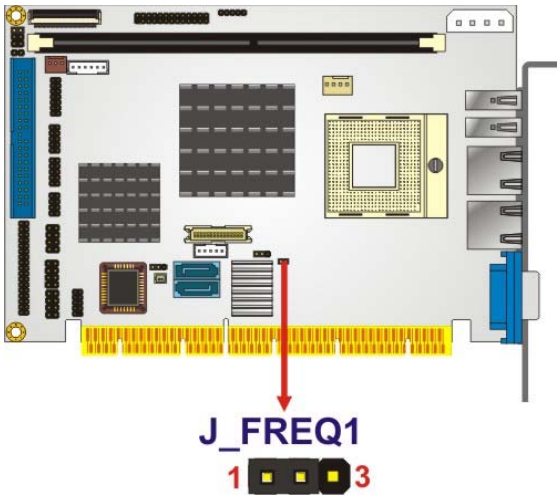



**Figure 5-12: CPU Frequency Setup Jumper**

### 5.4.6 LVDS Voltage Selection

**WARNING:**

Permanent damage to the screen and PCISA-9102 may occur if the wrong voltage is selected with this jumper. Please refer to the user guide that cam with the monitor to select the correct voltage.

| | |
|---|---|
| **Jumper Label:** | **J_VLVDS1** |
| **Jumper Type:** | 3-pin header |
| **Jumper Settings:** | See **Table 5-7** |
| **Jumper Location:** | See **Figure 5-13** |

The **LVDS Voltage Selection** jumper allows the LVDS screen voltage to be set. The **LVDS Voltage Selection** jumper settings are shown in **Table 5-7**.

| LVDS Voltage Select | Description | |
|---|---|---|
| Short 1-2 | +3.3V | Default |
| Short 2-3 | +5V | |

**Table 5-7: LVDS Voltage Selection Jumper Settings**

The LVDS Voltage Selection jumper location is shown in **Figure 5-13**.

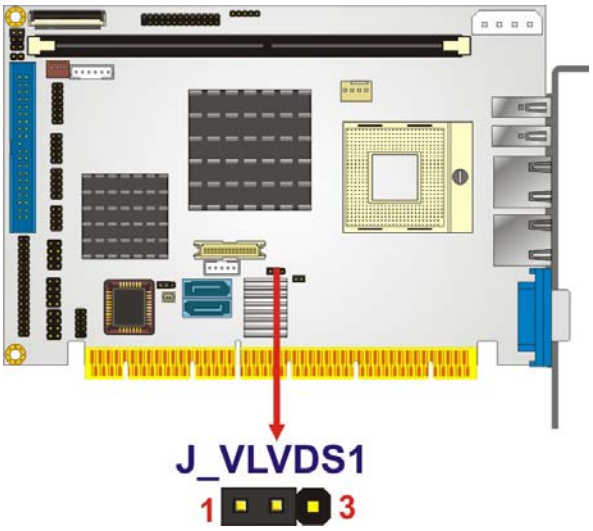



**Figure 5-13: LVDS Voltage Selection Jumper Pinout Locations**

### 5.4.7 LVDS Panel Resolution Selection

**Jumper Label:** **J_LCD_TYPE1**

**Jumper Type:** 8-pin header

**Jumper Settings:** See **Table 5-8**

**Jumper Location:** See **Figure 5-14**

The **LVDS Panel Resolution Selection** jumper allows the LVDS screen resolution to be set. The **LVDS Panel Resolution Selection** jumper settings are shown in **Table 5-8**.

| LVDS Resolution Select | Description | |
|---|---|---|
| Open | By software | Default |
| Short 1-2 | 640 x 480 (18-bit) | |
| Short 3-4 | 800 x 600 (18-bit) | |
| Short 1-2 & 3-4 | 1024 x 768 (18-bit) | |
| Short 5-6 | 1024 x 768 (24-bit) | |
| Short 1-2 & 5-6 | Reserved | |
| Short 3-4 & 5-6 | 1280 x 1024 (48-bit) | |
| Short 1-2 & 3-4 & 5-6 | 1600 x 1200 (48-bit) | |
| Short 7-8 | 1280 x 768 (18-bit) | |
| Short 1-2 & 7-8 | 1280 x 800 (18-bit) | |
| Short 3-4 & 7-8 | 1366 x 768 (24-bit) | |
| Short 1-2 & 3-4 & 7-8 | 1440 x 900 (36-bit) | |
| Short 5-6 & 7-8 | 1440 x 900 (48-bit) | |

**Table 5-8: LVDS Resolution Selection Jumper Settings**

The LVDS Voltage Selection jumper location is shown in **Figure 5-14**.

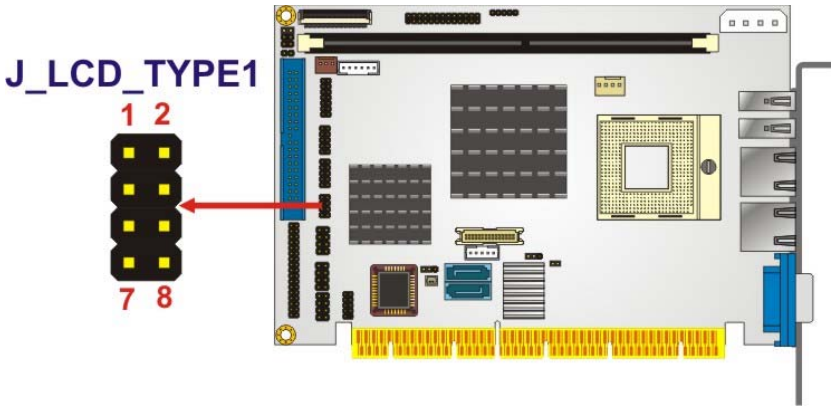



**Figure 5-14: LVDS Resolution Selection Jumper Pinout Locations**

## 5.5 Chassis Installation

### 5.5.1 Airflow

**WARNING:**

Airflow is critical to the cooling of the CPU and other onboard components. The chassis in which the PCISA-9102 must have air vents to allow cool air to move into the system and hot air to move out.

The PCISA-9102 must be installed in a chassis with ventilation holes on the sides allowing airflow to travel through the heat sink surface. In a system with an individual power supply unit, the cooling fan of a power supply can also help generate airflow through the board surface.

**NOTE:**

IEI has a wide range of backplanes available. Please contact your PCISA-9102 vendor, reseller or an IEI sales representative at sales@iei.com.tw or visit the IEI website (http://www.ieiworld.com.tw) to find out more about the available chassis.

### 5.5.2 Backplane Installation

Before the PCISA-9102 can be installed into the chassis, a backplane must first be installed. Please refer to the installation instructions that came with the backplane and the chassis to see how to install the backplane into the chassis.

**NOTE:**

IEI has a wide range of backplanes available. Please contact your PCISA-9102 vendor, reseller or an IEI sales representative at sales@iei.com.tw or visit the IEI website (http://www.ieiworld.com.tw) to find out more about the available chassis.

### 5.5.3 CPU Card Installation

To install the PCISA-9102 CPU card onto the backplane, carefully align the CPU card interface connectors with the corresponding socket on the backplane. To do this, please refer to the reference material that came with the backplane. Next, secure the CPU card to the chassis. To do this, please refer to the reference material that came with the chassis.

## 5.6 Internal Peripheral Device Connections

### 5.6.1 Peripheral Device Cables

The cables listed in **Table 5-9** are shipped with the PCISA-9102.

| Quantity | Type |
|---|---|
| 1 | IDE cable |
| 1 | Parallel port and RS-232 cable |
| 2 | SATA drive cables |
| 1 | SATA drive power cable |
| 1 | USB cable |

**Table 5-9: IEI Provided Cables**

Optional cables are listed below:

- FDD cable

- Keyboard/mouse cable
- RS-232/422/485 cable

### 5.6.2 IDE Cable Connection

The IDE flat cable connects to the PCISA-9102 to one or two IDE devices. To connect an IDE HDD to the PCISA-9102, please follow the instructions below.

**Step 1:** **Locate the IDE connector**. The location of the IDE device connector is shown in **Chapter 3**.

**Step 2:** **Insert the connector**. Connect the IDE cable connector to the onboard connector. See **Figure 5-15**. A key on the front of the cable connector ensures it can only be inserted in one direction.

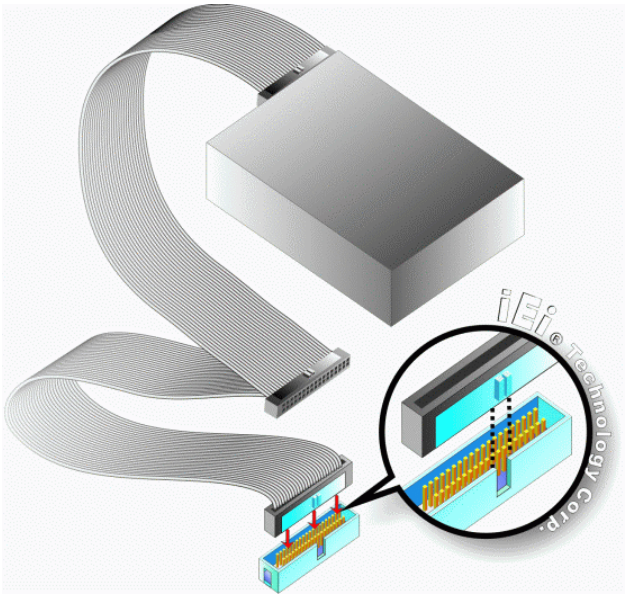


**Figure 5-15: IDE Cable Connection**

**Step 3:** **Connect the cable to an IDE device**. Connect the two connectors on the other side of the cable to one or two IDE devices. Make sure that pin 1 on the cable corresponds to pin 1 on the connector.

### 5.6.3 SATA Drive Connection

The PCISA-9102 is shipped with two SATA drive cables and one SATA drive power cable. To connect the SATA drives to the connectors, please follow the steps below.

**Step 1:** **Locate the connectors**. The locations of the SATA drive connectors are shown in **Chapter 3**.

**Step 2:** **Insert the cable connector**. Press the clip on the connector at the end of the SATA cable and insert the cable connector into the onboard SATA drive connector. See **Figure 5-16**.

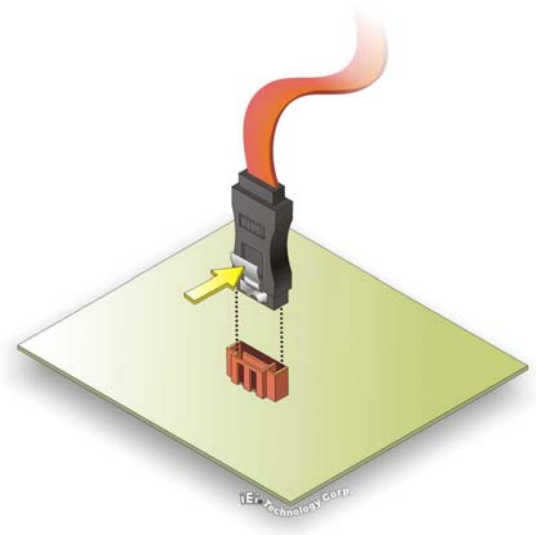


**Figure 5-16: SATA Drive Cable Connection**

**Step 3:** **Connect the cable to the SATA disk**. Connect the connector on the other end of the cable to the connector at the back of the SATA drive. See **Figure 5-17**.

**Step 4:** **Connect the SATA power cable**. Connect the SATA power connector to the back of the SATA drive. See **Figure 5-17**.

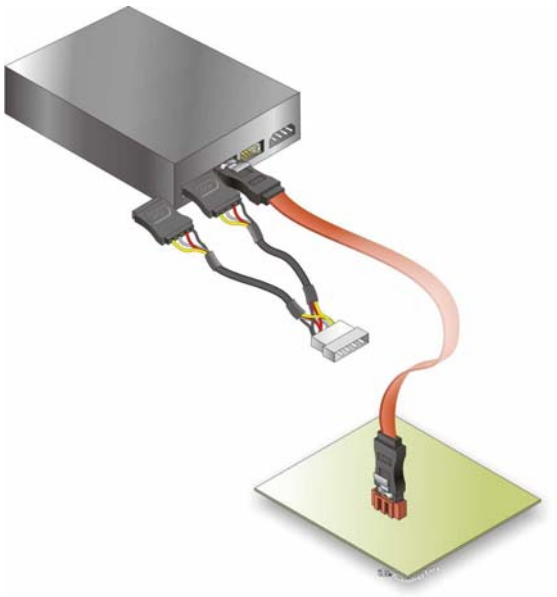


**Figure 5-17: SATA Power Drive Connection**

### 5.6.4 USB Cable (Dual Port) with Slot Bracket

The PCISA-9102 can be shipped with a dual port USB 2.0 cable. To connect the USB cable connector, please follow the steps below.

**Step 1:** **Locate the connectors**. The locations of the USB connectors are shown in **Chapter 3**.

**WARNING:**

If the USB pins are not properly aligned, the USB device can burn out.

**Step 2:** **Align the connectors**. The cable has two connectors. Correctly align pin 1on each cable connector with pin 1 on the PCISA-9102 USB connector.

**Step 3:** **Insert the cable connectors** Once the cable connectors are properly aligned with the USB connectors on the PCISA-9102, connect the cable connectors to

the onboard connectors. See **Figure 5-18**.

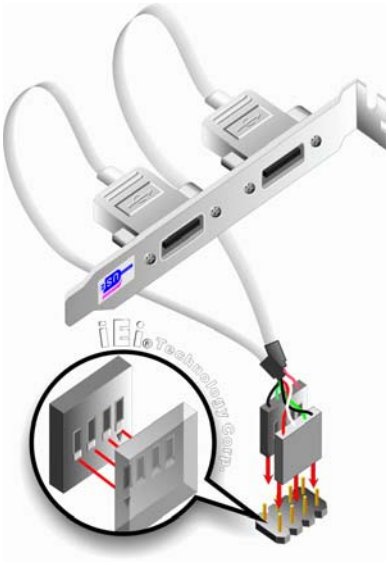


**Figure 5-18: Dual USB Cable Connection**

**Step 4:** **Attach the bracket to the chassis**. The USB 2.0 connectors are attached to a bracket. To secure the bracket to the chassis please refer to the installation instructions that came with the chassis.

### 5.6.5 7.1 Channel Audio Kit Installation (Optional)

**NOTE:**

This is an optional item that must be ordered separately. For further information please contact the nearest PCISA-9102 distributor, reseller or vendor or contact an iEi sales representative directly. Send any queries to sales@iei.com.tw.

The optional 7.1 channel audio kit connects to the 10-pin audio connector on the PCISA-9102. The audio kit consists of five audio jacks. One audio jack, Mic In, connects to a microphone. The remaining four audio jacks, Line-In, Front-Out, Rear-Out, and

Center Subwoofer, connect to speakers. To install the audio kit, please refer to the steps below:

**Step 1:** **Connect the audio kit cable.** The audio kit is shipped with a cable that connects the audio kit to the PCISA-9102. Connect the cable to the connector on the back of the audio kit. Make sure the pins are properly aligned (i.e. pin 1 connects to pin 1).

**Step 2:** **Locate the audio connector**. The location of the 10-pin audio connector is shown in **Chapter 3**.

**Step 3:** **Align pin 1**. Align pin 1 on the on-board connector with pin 1 on the audio kit cable connector. Pin 1 on the audio kit cable connector is indicated with a white dot. See **Figure 5-19**.

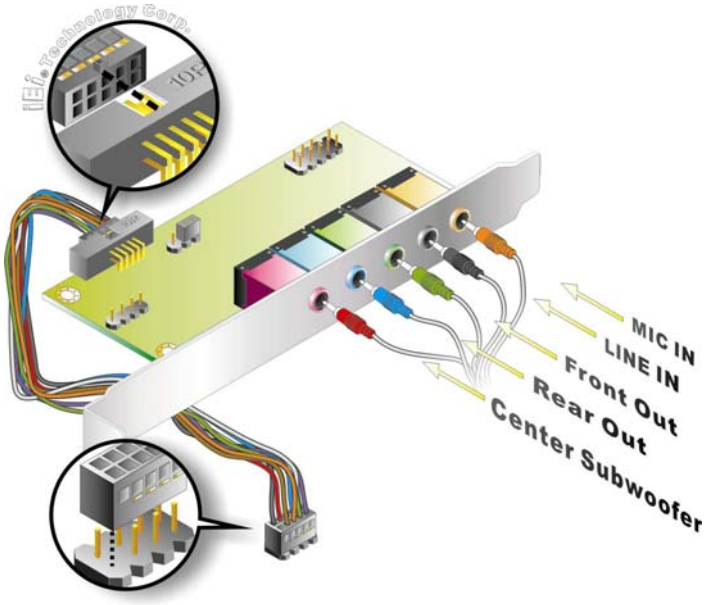



**Figure 5-19: 7.1 Channel Audio Kit**

**Step 4:** **Mount the audio kit onto the chassis**. Once the audio kit is connected to the PCISA-9102, secure the audio kit bracket to the system chassis.

**Step 5:** **Connect the audio devices**. Connect one speaker to the line-in audio jack, one speaker to the line-out audio jack and a microphone to the mic-in audio jack.

**Step 6:** **Install the driver**. If the 7.1 channel audio kit is used, the ALC883 Realtek codec driver must be installed. Refer to **Chapter 7** for driver installation instructions.

## 5.7 External Peripheral Interface Connection

The following external peripheral devices can be connected to the external peripheral interface connectors.

- RJ-45 Ethernet cables
- USB devices
- VGA monitor

To install these devices, connect the corresponding cable connector from the actual device to the corresponding PCISA-9102 external peripheral interface connector making sure the pins are properly aligned.

### 5.7.1 LAN Connection (Single Connector)

There are two external RJ-45 LAN connectors. The RJ-45 connectors enable connection to an external network. To connect a LAN cable with an RJ-45 connector, please follow the instructions below.

**Step 1:** **Locate the RJ-45 connectors**. The locations of the USB connectors are shown in **Chapter 4**.

**Step 2:** **Align the connectors.** Align the RJ-45 connector on the LAN cable with one of the RJ-45 connectors on the PCISA-9102. See **Figure 5-20**.

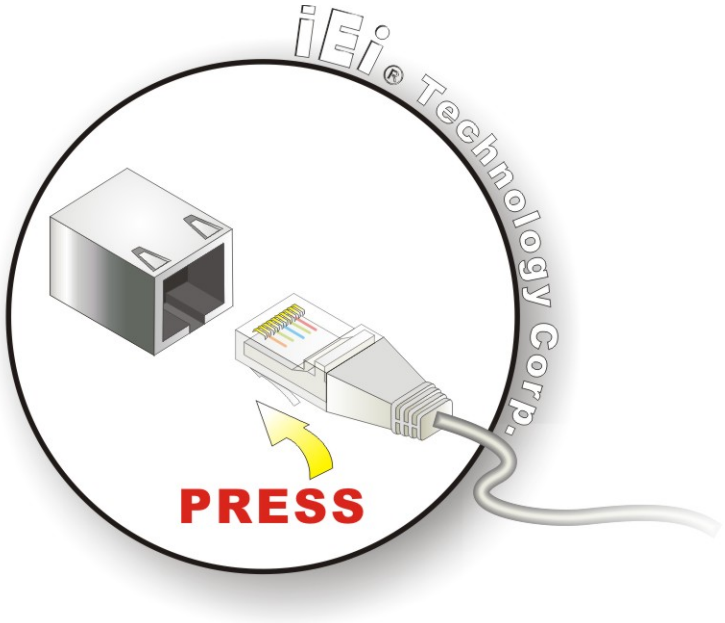



**Figure 5-20: LAN Connection**

**Step 3:** **Insert the LAN cable RJ-45 connector.** Once aligned, gently insert the LAN cable RJ-45 connector into the on-board RJ-45 connector.

### 5.7.2 VGA Monitor Connection

The PCISA-9102 has a single female DB-15 connector on the external peripheral interface panel. The DB-15 connector is connected to a CRT or VGA monitor. To connect a monitor to the PCISA-9102, please follow the instructions below.

**Step 1:** **Locate the female DB-15 connector**. The location of the female DB-15 connector is shown in **Chapter 3**.

**Step 2:** **Align the VGA connector**. Align the male DB-15 connector on the VGA screen cable with the female DB-15 connector on the external peripheral interface.

**Step 3:** **Insert the VGA connector** Once the connectors are properly aligned with the insert the male connector from the VGA screen into the female connector on the PCISA-9102. See **Figure 5-21**.

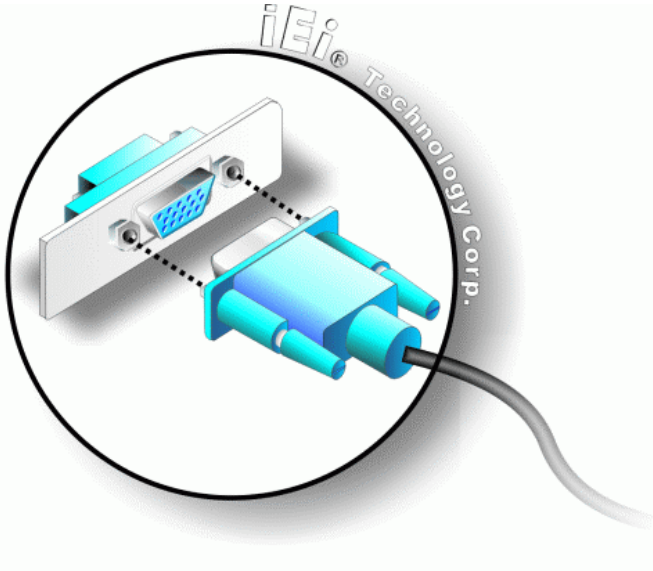


**Figure 5-21: VGA Connector**

**Step 4:** **Secure the connector**. Secure the DB-15 VGA connector from the VGA monitor to the external interface by tightening the two retention screws on either side of the connector.

### 5.7.3 USB Device Connection (Single Connector)

There are two external USB 2.0 connectors. Both connectors are perpendicular to the PCISA-9102. To connect a USB 2.0 or USB 1.1 device, please follow the instructions below.

**Step 1:** **Located the USB connectors**. The locations of the USB connectors are shown in **Chapter 4**.

**Step 2:** **Align the connectors.** Align the USB device connector with one of the connectors on the PCISA-9102. See **Figure 5-22**.

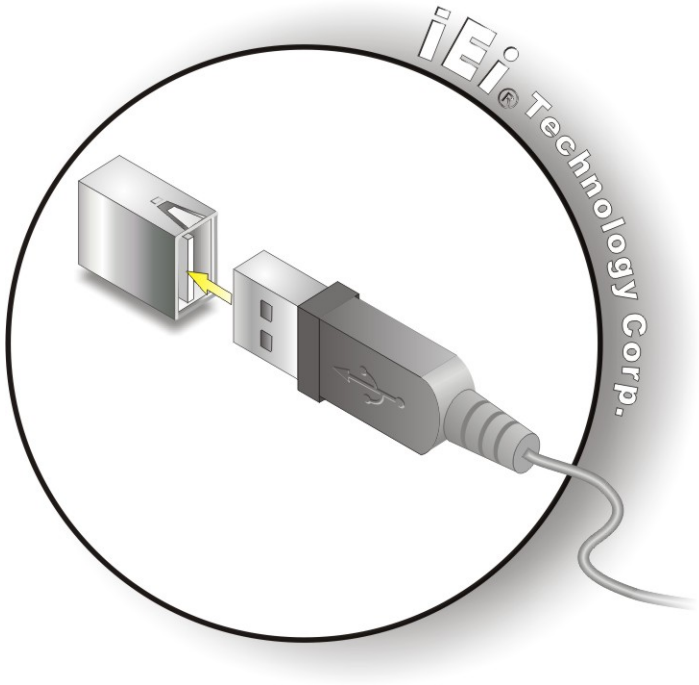


**Figure 5-22: USB Device Connection**

**Step 3:** **Insert the device connector.** Once aligned, gently insert the USB device connector into the on-board connector.

Chapter

6

# AMI BIOS

# 6.1 Introduction

A licensed copy of AMI BIOS is preprogrammed into the ROM BIOS. The BIOS setup program allows users to modify the basic system configuration. This chapter describes how to access the BIOS setup program and the configuration options that may be changed.

## 6.1.1 Starting Setup

The AMI BIOS is activated when the computer is turned on. The setup program can be activated in one of two ways.

1. Press the **DELETE** key as soon as the system is turned on or
2. Press the **DELETE** key when the "**Press Del to enter SETUP**" message appears on the screen.

If the message disappears before the **DELETE** key is pressed, restart the computer and try again.

## 6.1.2 Using Setup

Use the arrow keys to highlight items, press **ENTER** to select, use the PageUp and PageDown keys to change entries, press **F1** for help and press **ESC** to quit. Navigation keys are shown in.

| Key | Function |
|---|---|
| Up arrow | Move to previous item |
| Down arrow | Move to next item |
| Left arrow | Move to the item on the left hand side |
| Right arrow | Move to the item on the right hand side |
| Esc key | Main Menu – Quit and not save changes into CMOS<br>Status Page Setup Menu and Option Page Setup Menu -- Exit current page and return to Main Menu |
| Page Up key | Increase the numeric value or make changes |
| Page Dn key | Decrease the numeric value or make changes |

| | |
|---|---|
| F1 key | General help, only for Status Page Setup Menu and Option Page Setup Menu |
| F2 /F3 key | Change color from total 16 colors. F2 to select color forward. |
| F10 key | Save all the CMOS changes, only for Main Menu |

**Table 6-1: BIOS Navigation Keys**

### 6.1.3 Getting Help

When **F1** is pressed a small help window describing the appropriate keys to use and the possible selections for the highlighted item appears. To exit the Help Window press **Esc** or the **F1** key again.

### 6.1.4 Unable to Reboot After Configuration Changes

If the computer cannot boot after changes to the system configuration is made, CMOS defaults. Use the jumper described in Chapter **5**.

### 6.1.5 BIOS Menu Bar

The **menu bar** on top of the BIOS screen has the following main items:

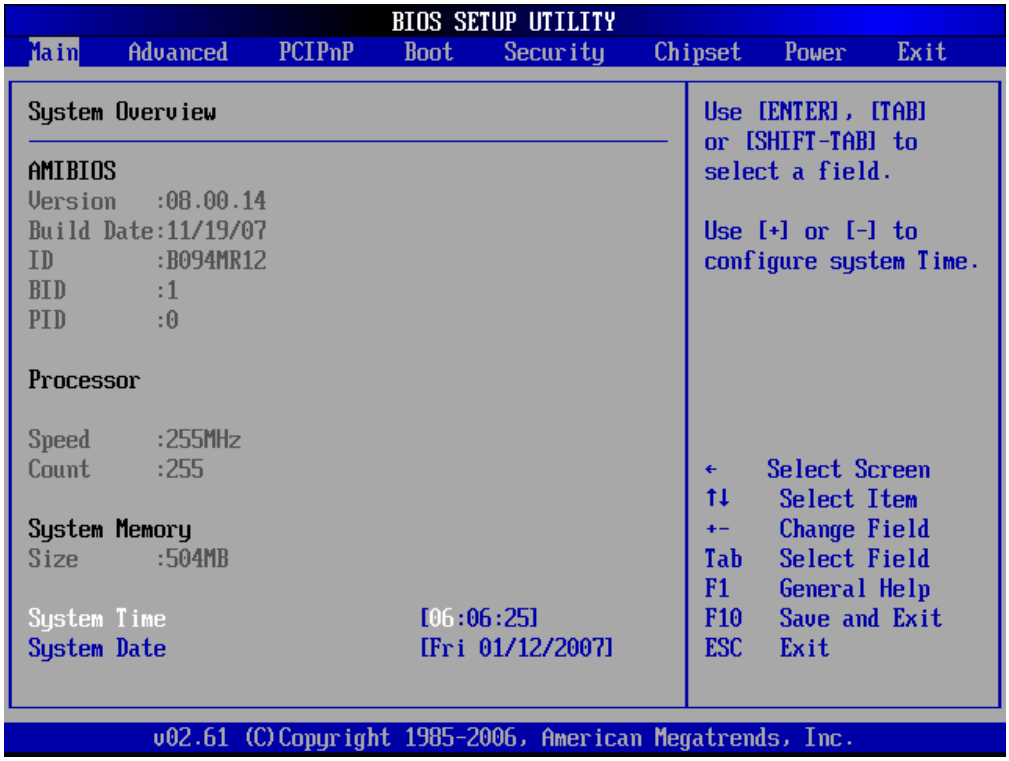
- **Main** Changes the basic system configuration.
- **Advanced** Changes the advanced system settings.
- **PCIPnP** Changes the advanced PCI/PnP Settings
- **Boot** Changes the system boot configuration.
- **Security** Sets User and Supervisor Passwords.
- **Chipset** Changes the chipset settings.
- **Power** Changes power management settings.
- **Exit** Selects exit options and loads default settings

The following sections completely describe the configuration options found in the menu items at the top of the BIOS screen and listed above.

## 6.2 Main

The **Main** BIOS menu (**BIOS Menu 1**) appears when the **BIOS Setup** program is entered.

The **Main** menu gives an overview of the basic system information.




**BIOS Menu 1: Main**

### ➔ System Overview

The **System Overview** lists a brief summary of different system components. The fields in **System Overview** cannot be changed. The items shown in the system overview include:

- **AMI BIOS**: Displays auto-detected BIOS information
  - **Version**: Current BIOS version
  - **Build Date**: Date the current BIOS version was made
  - **ID**: Installed BIOS ID
- **Processor**: Displays auto-detected CPU specifications
  - **Type**: Names the currently installed processor
  - **Speed**: Lists the processor speed

- **Count**: The number of CPUs on the motherboard

- **System Memory**: Displays the auto-detected system memory.
  - **Size**: Lists memory size

**The System Overview field also has two user configurable fields:**

➔ **System Time [xx:xx:xx]**

Use the **System Time** option to set the system time. Manually enter the hours, minutes and seconds.

➔ **System Date [xx/xx/xx]**

Use the **System Date** option to set the system date. Manually enter the day, month and year.

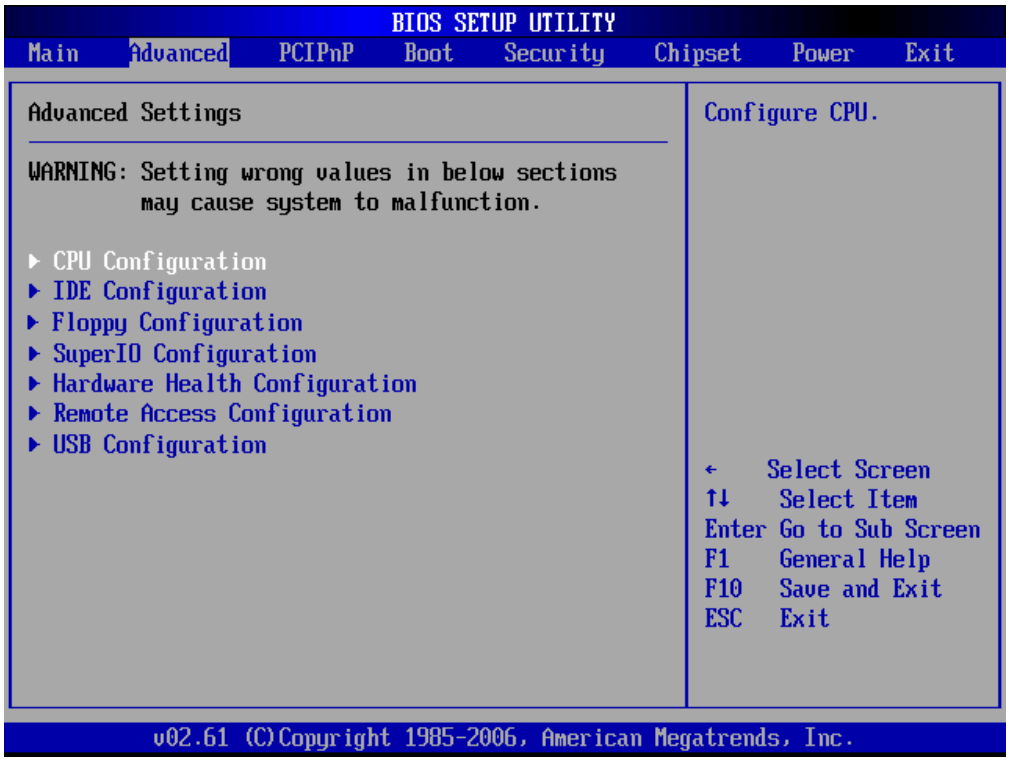
## 6.3 Advanced

Use the **Advanced** menu (**BIOS Menu 2**) to configure the CPU and peripheral devices through the following sub-menus:

**WARNING!**

Setting the wrong values in the sections below may cause the system to malfunction. Make sure that the settings made are compatible with the hardware.

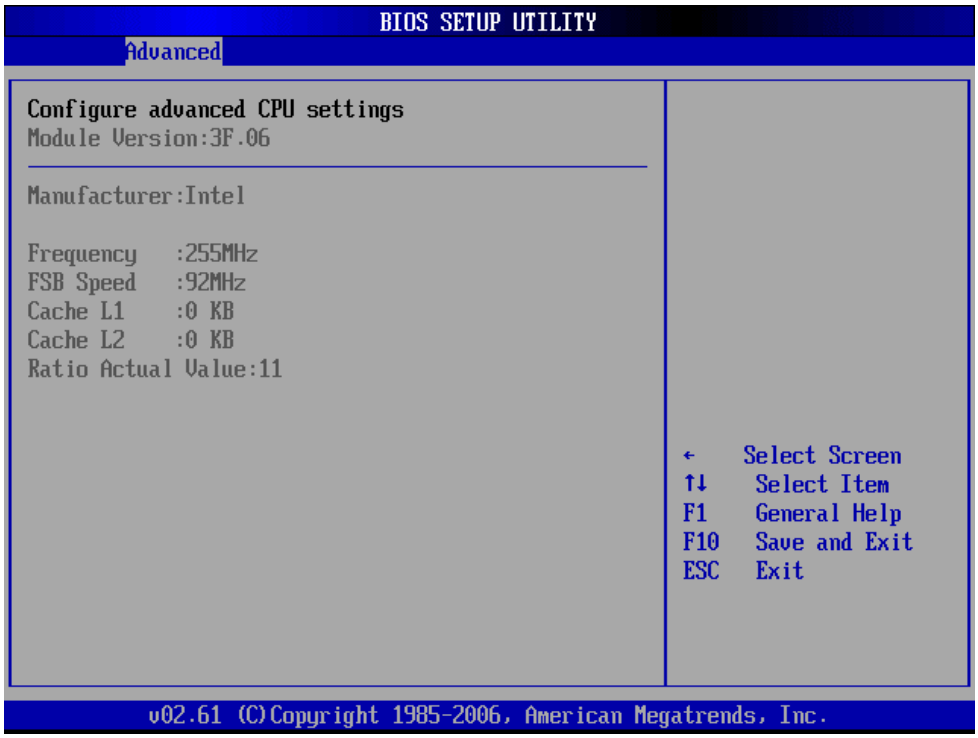
- CPU Configuration (see **Section 6.3.1**)
- IDE Configuration (see **Section 6.3.2**)
- Floppy Configuration (see **Section 6.3.3**)
- Super IO Configuration (see **Section 6.3.4**)
- Hardware Health Configuration (see **Section 6.3.5**)
- Remote Access Configuration (see **Section** )
- USB Configuration (see **Section 6.3.7**)




**BIOS Menu 2: Advanced No Power**

### 6.3.1 CPU Configuration

Use the **CPU Configuration** menu (**BIOS Menu 3**) to view detailed CPU specifications and configure the CPU.



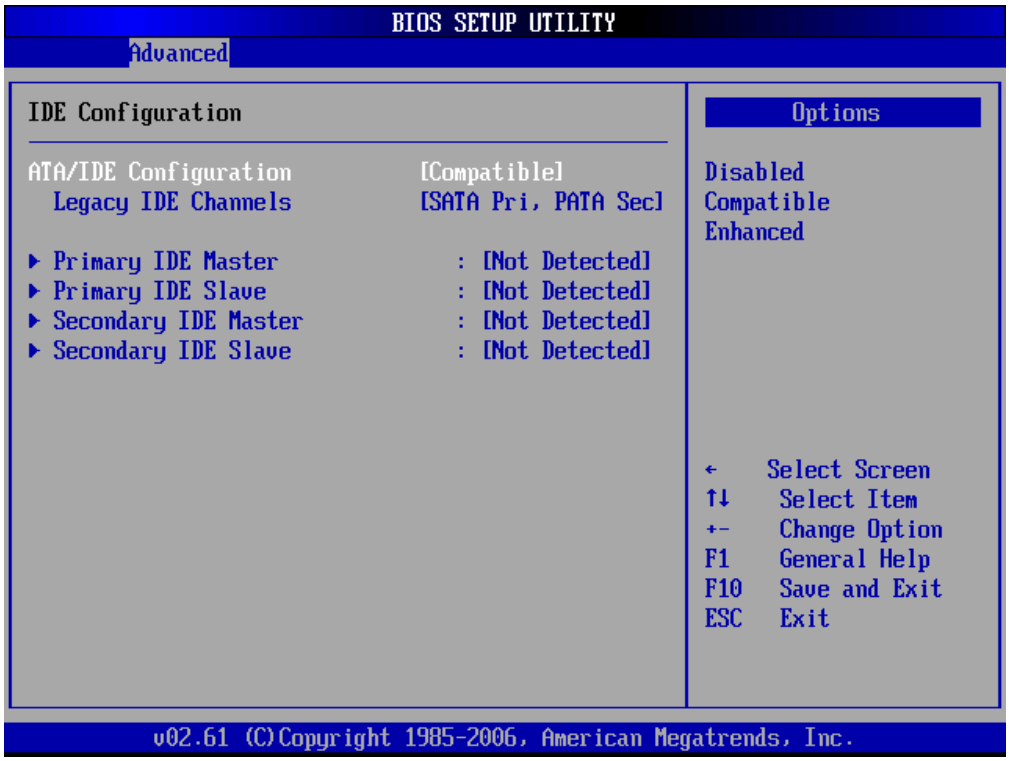

**BIOS Menu 3: CPU Configuration**

The CPU Configuration menu (**BIOS Menu 3**) lists the following CPU details:

- **Manufacturer**: Lists the name of the CPU manufacturer
- **Brand String**: Lists the brand name of the CPU being used
- **Frequency:** Lists the CPU processing speed
- **FSB Speed**: Lists the FSB speed
- **Cache L1**: Lists the CPU L1 cache size
- **Cache L2**: Lists the CPU L2 cache size

### 6.3.2 IDE Configuration

Use the **IDE Configuration** menu (**BIOS Menu 4**) to change and/or set the configuration of the IDE devices installed in the system.




**BIOS Menu 4: IDE Configuration**

➔ **ATA/IDE Configurations [Compatible]**

Use the **ATA/IDE Configurations** option to configure the ATA/IDE controller.

➔ **Disabled** Disables the on-board ATA/IDE controller.

➔ **Compatible** **DEFAULT** Configures the on-board ATA/IDE controller to be in compatible mode. In this mode, a SATA channel will replace one of the IDE channels. This mode supports up to 4 storage devices.

➔ **Enhanced** Configures the on-board ATA/IDE controller to be in Enhanced mode. In this mode, IDE channels and SATA channels are separated. This mode supports up to 6 storage devices. Some legacy OS do not support this mode.

➔ **Legacy IDE Channels [SATA Pri, PATA Sec]**

- ➔ **SATA Only**
- ➔ **SATA Pri., PATA Sec** **DEFAULT**
- ➔ **PATA Only**

➔ **IDE Master and IDE Slave**

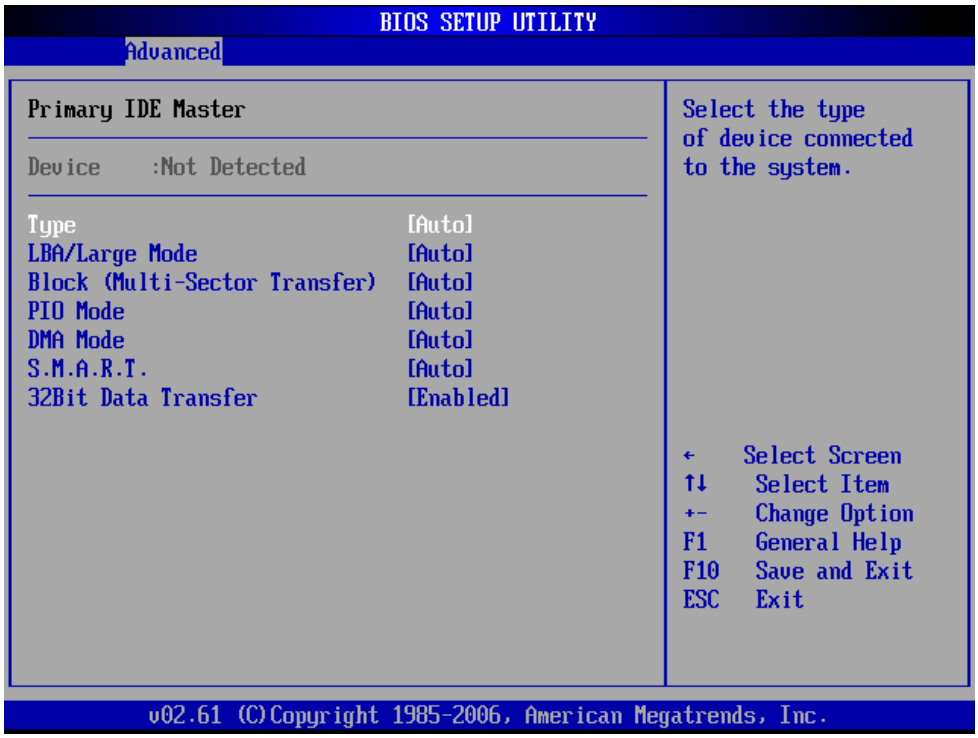
When entering setup, BIOS auto detects the presence of IDE devices. BIOS displays the status of the auto detected IDE devices. The following IDE devices are detected and are shown in the **IDE Configuration** menu:

- Primary IDE Master
- Primary IDE Slave
- Secondary IDE Master
- Secondary IDE Slave

The **IDE Configuration** menu (**BIOS Menu 4**) allows changes to the configurations for the IDE devices installed in the system. If an IDE device is detected, and one of the above listed four BIOS configuration options are selected, the IDE configuration options shown in **Section 6.3.2.1** appear.

### 6.3.2.1 IDE Master, IDE Slave

Use the **IDE Master** and **IDE Slave** configuration menu to view both primary and secondary IDE device details and configure the IDE devices connected to the system.




**BIOS Menu 5: IDE Master and IDE Slave Configuration**

➔ **Type [Auto]**

Use the **Type** BIOS option select the type of device the AMIBIOS attempts to boot from after the Power-On Self-Test (POST) is complete.

➔ **Not Installed** BIOS is prevented from searching for an IDE disk drive on the specified channel.

➔ **Auto** **DEFAULT** The BIOS auto detects the IDE disk drive type attached to the specified channel. This setting should be used if an IDE hard disk drive is attached to the specified channel.

➔ **CD/DVD** The CD/DVD option specifies that an IDE CD-ROM drive is attached to the specified IDE channel. The BIOS does not attempt to search for other types of

IDE disk drives on the specified channel.

➔ **ARMD**

This option specifies an ATAPI Removable Media Device. These include, but are not limited to:

- ➔ **ZIP**
- ➔ **LS-120**

➔ **LBA/Large Mode [Auto]**

Use the **LBA/Large Mode** option to disable or enable BIOS to auto detects LBA (Logical Block Addressing). LBA is a method of addressing data on a disk drive. In LBA mode, the maximum drive capacity is 137 GB.

➔ **Disabled** BIOS is prevented from using the LBA mode control on the specified channel.

➔ **Auto** **DEFAULT** BIOS auto detects the LBA mode control on the specified channel.

➔ **Block (Multi Sector Transfer) [Auto]**

Use the **Block (Multi Sector Transfer)** to disable or enable BIOS to auto detect if the device supports multi-sector transfers.

➔ **Disabled** BIOS is prevented from using Multi-Sector Transfer on the specified channel. The data to and from the device occurs one sector at a time.

➔ **Auto** **DEFAULT** BIOS auto detects Multi-Sector Transfer support on the drive on the specified channel. If supported the data transfer to and from the device occurs multiple sectors at a time.

➔ **PIO Mode [Auto]**

Use the **PIO Mode** option to select the IDE PIO (Programmable I/O) mode program timing cycles between the IDE drive and the programmable IDE controller. As the PIO mode increases, the cycle time decreases.

| | | |
|---|---|---|
| ➔ **Auto** | **DEFAULT** | BIOS auto detects the PIO mode. Use this value if the IDE disk drive support cannot be determined. |
| ➔ **0** | | PIO mode 0 selected with a maximum transfer rate of 3.3MBps |
| ➔ **1** | | PIO mode 1 selected with a maximum transfer rate of 5.2MBps |
| ➔ **2** | | PIO mode 2 selected with a maximum transfer rate of 8.3MBps |
| ➔ **3** | | PIO mode 3 selected with a maximum transfer rate of 11.1MBps |
| ➔ **4** | | PIO mode 4 selected with a maximum transfer rate of 16.6MBps (This setting generally works with all hard disk drives manufactured after 1999. For other disk drives, such as IDE CD-ROM drives, check the specifications of the drive.) |

➔ **DMA Mode [Auto]**

Use the **DMA Mode** BIOS selection to adjust the DMA mode options.

| | | |
|---|---|---|
| ➔ **Auto** | **DEFAULT** | BIOS auto detects the DMA mode. Use this value if the IDE disk drive support cannot be determined. |
| ➔ **SWDMA0** | | Single Word DMA mode 0 selected with a maximum data transfer rate of 2.1MBps |
| ➔ **SWDMA1** | | Single Word DMA mode 1 selected with a maximum data transfer rate of 4.2MBps |
| ➔ **SWDMA2** | | Single Word DMA mode 2 selected with a maximum data transfer rate of 8.3MBps |

- **MWDMA0** Multi Word DMA mode 0 selected with a maximum data transfer rate of 4.2MBps
- **MWDMA1** Multi Word DMA mode 1 selected with a maximum data transfer rate of 13.3MBps
- **MWDMA2** Multi Word DMA mode 2 selected with a maximum data transfer rate of 16.6MBps
- **UDMA1** Ultra DMA mode 0 selected with a maximum data transfer rate of 16.6MBps
- **UDMA1** Ultra DMA mode 1 selected with a maximum data transfer rate of 25MBps
- **UDMA2** Ultra DMA mode 2 selected with a maximum data transfer rate of 33.3MBps
- **UDMA3** Ultra DMA mode 3 selected with a maximum data transfer rate of 44MBps (To use this mode, it is required that an 80-conductor ATA cable is used.)
- **UDMA4** Ultra DMA mode 4 selected with a maximum data transfer rate of 66.6MBps (To use this mode, it is required that an 80-conductor ATA cable is used.)
- **UDMA5** Ultra DMA mode 5 selected with a maximum data transfer rate of 99.9MBps (To use this mode, it is required that an 80-conductor ATA cable is used.)

➔ **S.M.A.R.T [Auto]**

Use the **S.M.A.R.T** option to auto-detect, disable or enable Self-Monitoring Analysis and Reporting Technology (SMART) on the drive on the specified channel. **S.M.A.R.T** predicts impending drive failures. The **S.M.A.R.T** BIOS option enables or disables this function.

➔ **Auto** **DEFAULT** BIOS auto detects HDD SMART support.

➔ **Disabled** Prevents BIOS from using the HDD SMART feature.

➔ **Enabled** Allows BIOS to use the HDD SMART feature

➔ **32Bit Data Transfer [Enabled]**

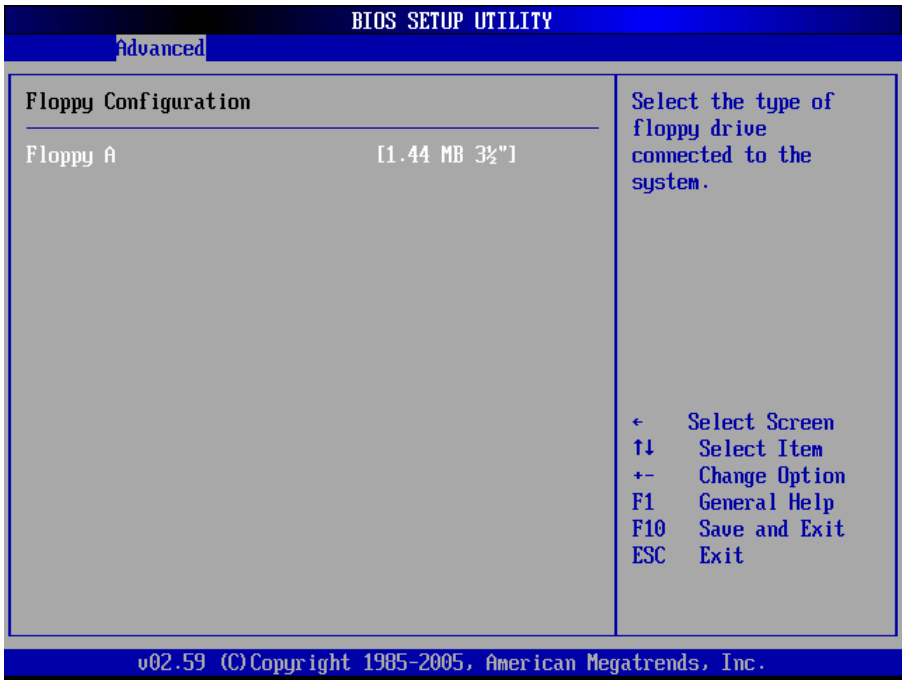
Use the **32Bit Data Transfer** BIOS option to enables or disable 32-bit data transfers.

➔ **Disabled** Prevents the BIOS from using 32-bit data transfers.

➔ **Enabled** **DEFAULT** Allows BIOS to use 32-bit data transfers on supported hard disk drives.

### 6.3.3 Floppy Configuration

Use the **Floppy Configuration menu** to configure the floppy disk drive connected to the system.




**BIOS Menu 6: IDE Master and IDE Slave Configuration**

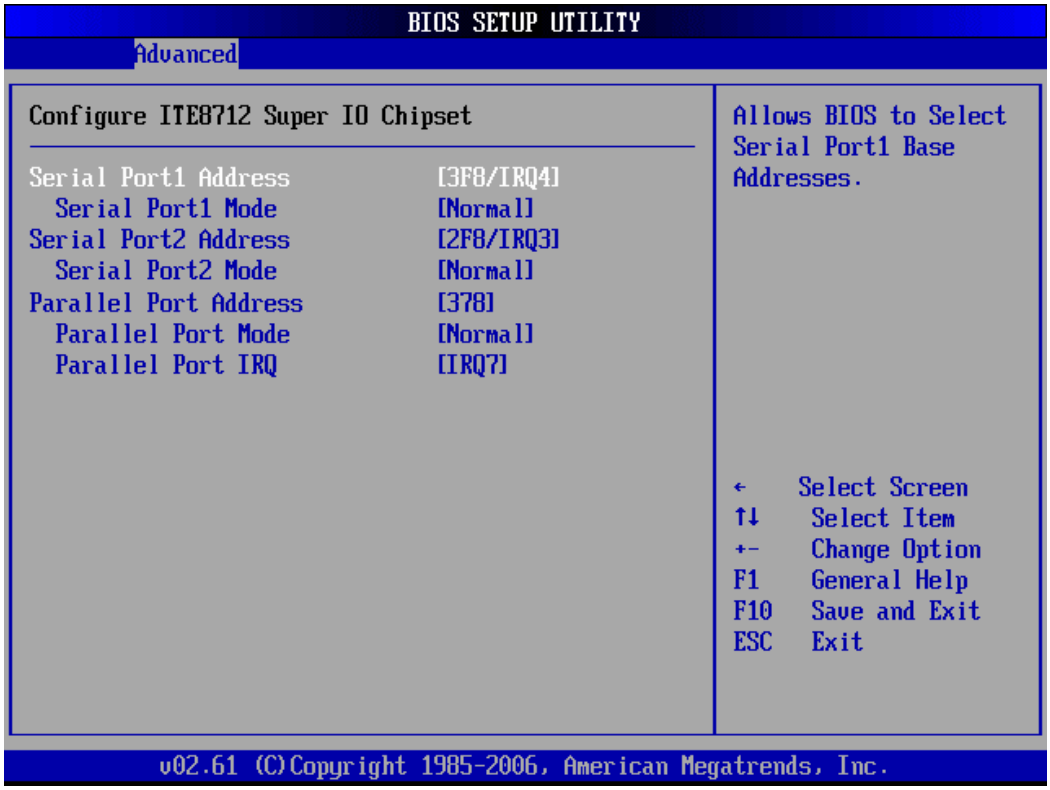
➔ **Floppy A**

Use the **Floppy A** option to configure the floppy disk drive. Options are listed below:

- Disabled
- 360 KB 51/4”
- 1.2 MB 51/4”
- 720 KB 31/2”
- 1.44 MB 31/2’
- 2.88 MB 31/2”

### 6.3.4 Super IO Configuration

Use the **Super IO Configuration** menu (**BIOS Menu 7**) to set or change the configurations for the FDD controllers, parallel ports and serial ports.




**BIOS Menu 7: Super IO Configuration**

➔ **Serial Port1 Address [3F8/IRQ4]**

Use the **Serial Port1 Address** option to select the Serial Port 1 base address.

| | | |
|---|---|---|
| ➔ **Disabled** | | No base address is assigned to Serial Port 1 |
| ➔ **3F8/IRQ4** | **DEFAULT** | Serial Port 1 I/O port address is 3F8 and the interrupt address is IRQ4 |
| ➔ **3E8/IRQ4** | | Serial Port 1 I/O port address is 3E8 and the interrupt address is IRQ4 |
| ➔ **2E8/IRQ3** | | Serial Port 1 I/O port address is 2E8 and the interrupt address is IRQ3 |

➔ **Serial Port2 Address [2F8/IRQ3]**

Use the **Serial Port2 Address** option to select the Serial Port 2 base address.

| | | |
|---|---|---|
| ➔ **Disabled** | | No base address is assigned to Serial Port 2 |
| ➔ **2F8/IRQ3** | **DEFAULT** | Serial Port 2 I/O port address is 3F8 and the interrupt address is IRQ3 |
| ➔ **3E8/IRQ4** | | Serial Port 2 I/O port address is 3E8 and the interrupt address is IRQ4 |
| ➔ **2E8/IRQ3** | | Serial Port 2 I/O port address is 2E8 and the interrupt address is IRQ3 |

➔ **Serial Port2 Mode [Normal]**

Use the **Serial Port2 Mode** option to select the Serial Port2 operational mode.

| | | |
|---|---|---|
| ➔ **Normal** | **DEFAULT** | Serial Port 2 mode is normal |
| ➔ **IrDA** | | Serial Port 2 mode is IrDA |

➔ **ASK IR** Serial Port 2 mode is ASK IR

➔ **Parallel Port Address [378]**

Use the **Parallel Port Address** option to select the parallel port base address.

➔ **Disabled** No base address is assigned to the Parallel Port

➔ **378** **DEFAULT** Parallel Port I/O port address is 378

➔ **278** Parallel Port I/O port address is 278

➔ **3BC** Parallel Port I/O port address is 3BC

➔ **Parallel Port Mode [Normal]**

Use the **Parallel Port Mode** option to select the mode the parallel port operates in.

➔ **Normal** **DEFAULT** The normal parallel port mode is the standard mode for parallel port operation.

➔ **Bi-Directional** Parallel port outputs are 8-bits long. Inputs are accomplished by reading 4 of the 8 bits on the status register.

➔ **EPP** The parallel port operates in the enhanced parallel port mode (EPP). The EPP mode supports bi-directional communication between the system and the parallel port device and the transmission rates between the two are much faster than the Normal mode.

➔ **ECP** The parallel port operates in the extended capabilities port (ECP) mode. The ECP mode supports bi-directional communication between the system and the parallel port device and the

transmission rates between the two are much faster than the Normal mode

➔ **ECP+EPP** The parallel port is compatible with both EPP and ECP devices described above

➔ **Parallel Port IRQ [IRQ7]**

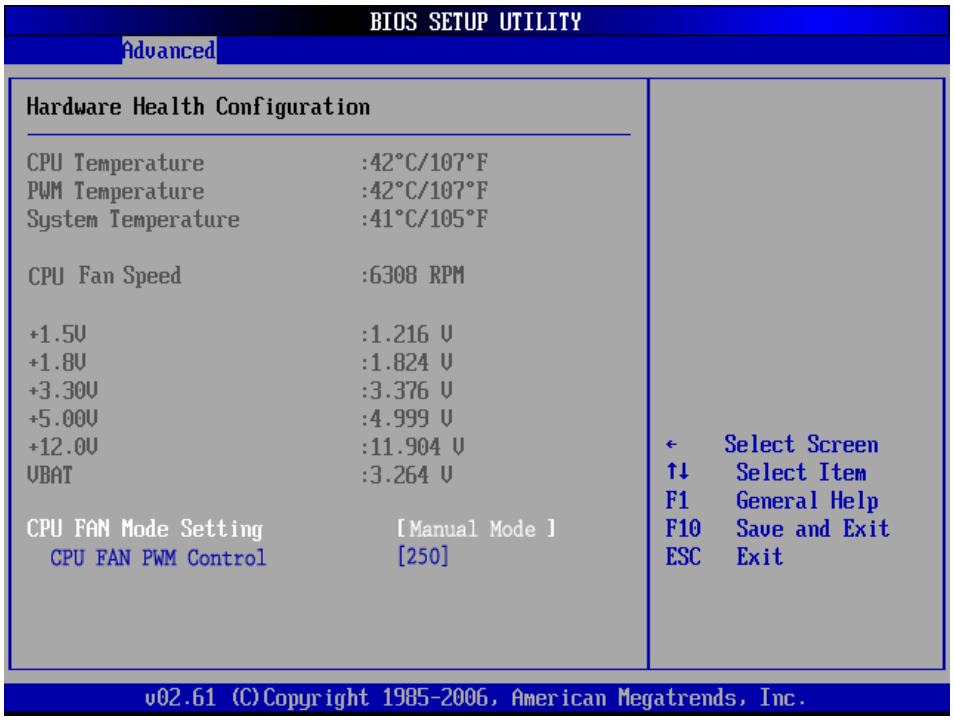
Use the **Parallel Port IRQ** selection to set the parallel port interrupt address.

➔ **IRQ5** IRQ5 is assigned as the parallel port interrupt address

➔ **IRQ7** **DEFAULT** IRQ7 is assigned as the parallel port interrupt address

### 6.3.5 Hardware Health Configuration

The **Hardware Health Configuration** menu (**BIOS Menu 8**) shows the operating temperature, fan speeds and system voltages.




**BIOS Menu 8: Hardware Health Configuration**

The following system parameters and values are shown. The system parameters that are monitored are:

- **System Temperatures**: The following system temperatures are monitored
  - CPU Temperature
  - PWM Temperature
  - System Temperature
- **Fan Speeds**: The CPU cooling fan speed is monitored.
  - CPU Fan Speed
- **Voltages**: The following system voltages are monitored
  - +1.5V
  - +1.8V
  - +3.3V
  - +5V
  - +12.0V
  - VBAT

➔ **CPU FAN Mode Setting [Manual Mode]**

Use the **CPU FAN1 Mode Setting** option to configure the second fan.

➔ **Manual Mode** **DEFAULT** Fan is on all the time

➔ **Thermal Cruise Mode** If selected, the following appears with values that can be selected:

- ➔ **Target CPU Temp Value**
- ➔ **CPU Temp Tolerance Value**
- ➔ **CPU FAN StartUp Value**
- ➔ **CPU FAN Stop Value**
- ➔ **CPU FAN StopTime Value**

➔ **Speed Cruise Mode** If selected, the following appears with

values that can be selected:

- ➔ **CPU FAN TargetSpeed Value**
- ➔ **CPU Temp Tolerance Value**

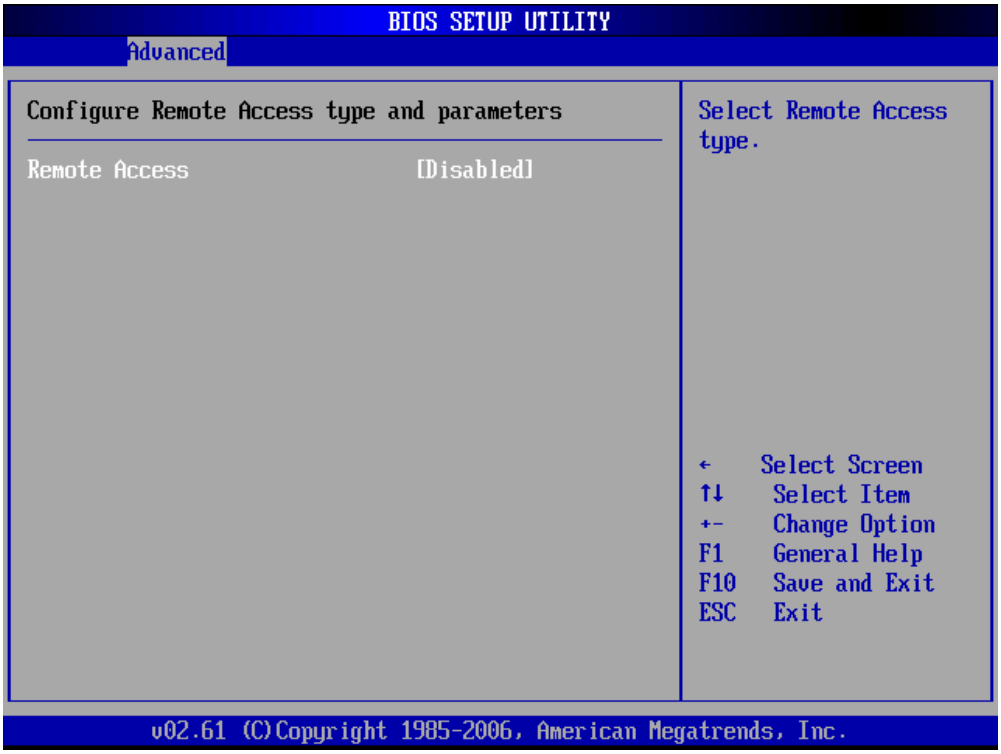
➔ **CPU Fan PWM Control [250]**

The **CPU Fan PWM Control** option can only be set if the **CPU FAN Mode Setting** option is set to **Manual Mode**. Use the **CPU Fan PWM Control** option to select PWM duty cycle control. The PWM duty cycle specifies the width of the modulated pulse. A high value ensures a wide pulse and a low value ensures a narrow pulse. To select a value, select the **CPU Fan PWM Control** option and enter a decimal number between 000 and 255. The PWM Duty Cycle control range is specified below.

- PWM Minimum Mode: 0
- PWM Maximum Mode: 255

### 6.3.6 Remote Access Configuration

Use the **Remote Access Configuration** menu (**BIOS Menu 9**) to configure remote access parameters. The **Remote Access Configuration** is an AMIBIOS feature and allows a remote host running a terminal program to display and configure the BIOS settings.




**BIOS Menu 9: Remote Access Configuration [Advanced]**

➔ **Remote Access [Disabled]**

Use the **Remote Access** option to enable or disable access to the remote functionalities of the system.

➔ **Disabled** **DEFAULT** Remote access is disabled.

➔ **Enabled** Remote access configuration options shown below appear:

- ➔ **Serial Port Number**
- ➔ **Serial Port Mode**
- ➔ **Redirection after BIOS POST**
- ➔ **Terminal Type**

These configuration options are discussed below.

➔ **Serial Port Number [COM1]**

Use the **Serial Port Number** option allows users to select the serial port used for remote access.

| | | |
|---|---|---|
| ➔ **COM1** | **DEFAULT** | System is remotely accessed through COM1 |
| ➔ **COM2** | | System is remotely accessed through COM2 |

**NOTE**: Make sure the selected COM port is enabled through the Super I/O configuration menu.

➔ **Base Address, IRQ [3F8h,4]**

The **Base Address, IRQ** option cannot be configured and only shows the interrupt address of the serial port listed above.

➔ **Serial Port Mode [115200 8,n,1]**

Use the **Serial Port Mode** option to select baud rate through which the console redirection is made. The following configuration options are available

- 115200 8,n,1 **DEFAULT**
- 57600 8,n,1
- 38400 8,n,1
- 19200 8,n,1
- 09600 8,n,1

**NOTE:**

Identical baud rate setting musts be set on the host (a management computer running a terminal software) and the slave

➔ **Redirection After BIOS POST [Always]**

Use the **Redirection After BIOS POST** option to specify when console redirection should occur.

| | | |
|---|---|---|
| ➔ **Disabled** | | The console is not redirected after POST |
| ➔ **Boot Loader** | | Redirection is active during POST and during Boot Loader |
| ➔ **Always** | **DEFAULT** | Redirection is always active (Some OSes may not work if set to Always) |

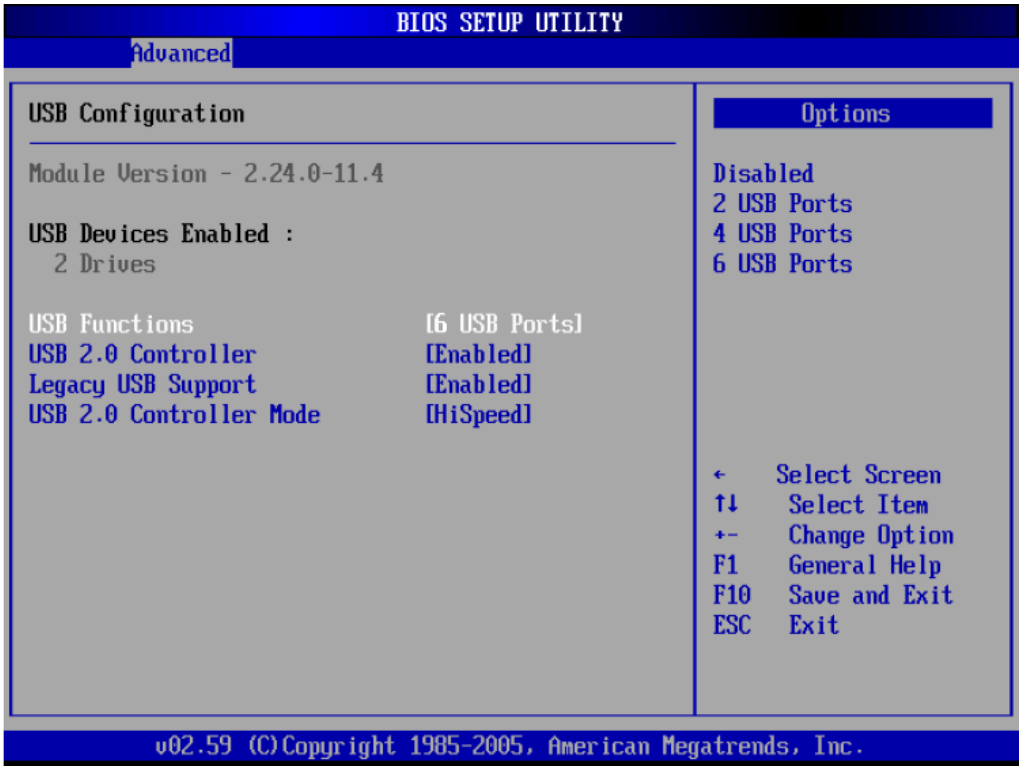
➔ **Terminal Type [ANSI]**

Use the **Terminal Type** BIOS option to specify the remote terminal type.

| | | |
|---|---|---|
| ➔ **ANSI** | **DEFAULT** | The target terminal type is ANSI |
| ➔ **VT100** | | The target terminal type is VT100 |
| ➔ **VT-UTF8** | | The target terminal type is VT-UTF8 |

### 6.3.7 USB Configuration

Use the **USB Configuration** menu (**BIOS Menu 10**) to read USB configuration information and configure the USB settings.




**BIOS Menu 10: USB Configuration**

➔ **USB Configuration**

The **USB Configuration** field shows the system USB configuration. The items listed are:

- Module Version: x.xxxxx.xxxxx

➔ **USB Devices Enabled**

The **USB Devices Enabled** field lists the USB devices that are enabled on the system

➔ **USB Function [6 USB Ports]**

Use the **USB Function** BIOS option to enable or disable a specified number of USB ports. If only two USB ports are being used, disabling the remaining six USB frees up system resources that can be redirected elsewhere.

➔ **Disabled** USB function support disabled

➔ **2 USB Ports** Two USB ports are enabled

➔ **4 USB Ports** Four USB ports are enabled

➔ **6 USB Ports** **DEFAULT** Six USB ports are enabled

➔ **USB 2.0 Controller [Enabled]**

Use the **USB 2.0 Controller** BIOS option to enable or disable the USB 2.0 controller

➔ **Disabled** USB 2.0 controller disabled

➔ **Enabled** **DEFAULT** USB 2.0 controller enabled

➔ **Legacy USB Support [Enabled]**

Use the **Legacy USB Support** BIOS option to enable USB mouse and USB keyboard support.

Normally if this option is not enabled, any attached USB mouse or USB keyboard does not become available until a USB compatible operating system is fully booted with all USB drivers loaded. When this option is enabled, any attached USB mouse or USB keyboard can control the system even when there is no USB driver loaded onto the system.

➔ **Disabled** Legacy USB support disabled

➔ **Enabled** **DEFAULT** Legacy USB support enabled

➔ **Auto** Legacy USB support disabled if no USB devices are connected

➔ **USB2.0 Controller Mode [HiSpeed]**

Use the **USB2.0 Controller Mode** option to set the speed of the USB2.0 controller.

➔ **FullSpeed** The controller is capable of operating at 12Mb/s

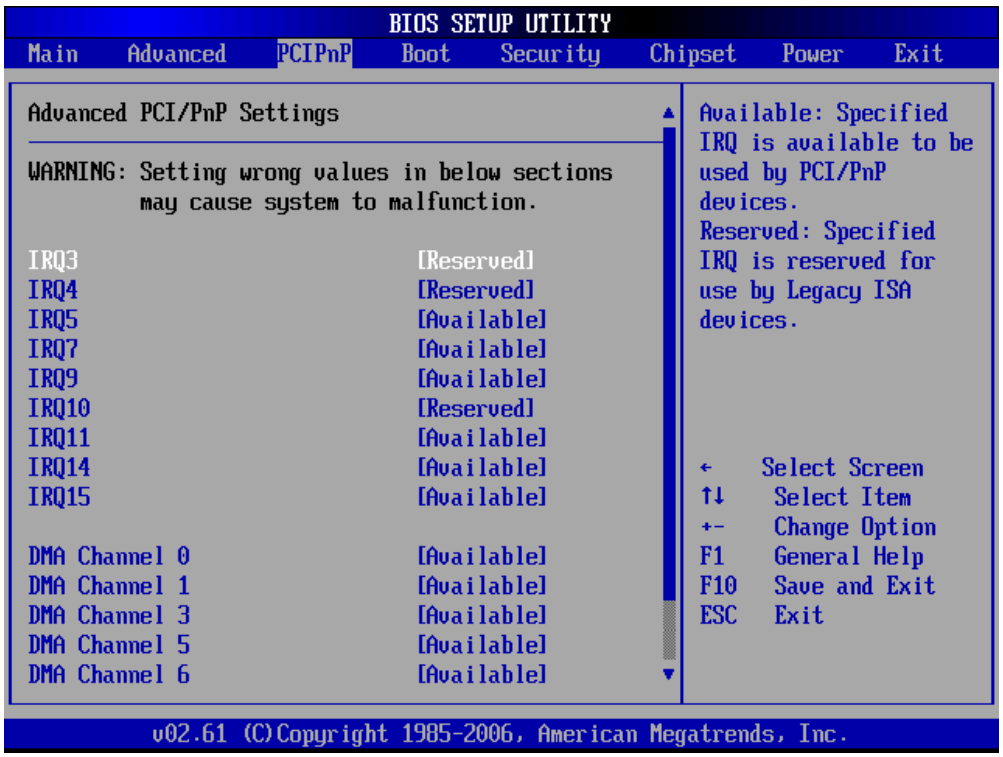
➔ **HiSpeed** **DEFAULT** The controller is capable of operating at 480Mb/s

## 6.4 PCI/PnP

Use the **PCI/PnP** menu (**BIOS Menu 11**) to configure advanced PCI and PnP settings.

**WARNING!**

Setting wrong values for the BIOS selections in the PCIPnP BIOS menu may cause the system to malfunction.


BIOS SETUP UTILITY
Main Advanced PCIPnP Boot Security Chipset Power Exit
Advanced PCI/PnP Settings
WARNING: Setting wrong values in below sections may cause system to malfunction.
IRQ3 [Reserved]
IRQ4 [Reserved]
IRQ5 [Available]
IRQ7 [Available]
IRQ9 [Available]
IRQ10 [Reserved]
IRQ11 [Available]
IRQ14 [Available]
IRQ15 [Available]
DMA Channel 0 [Available]
DMA Channel 1 [Available]
DMA Channel 3 [Available]
DMA Channel 5 [Available]
DMA Channel 6 [Available]
Available: Specified IRQ is available to be used by PCI/PnP devices.
Reserved: Specified IRQ is reserved for use by Legacy ISA devices.
← Select Screen
↑↓ Select Item
+- Change Option
F1 General Help
F10 Save and Exit
ESC Exit
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**BIOS Menu 11: PCI/PnP Configuration**

➔ **IRQ#**

Use the **IRQ#** address to specify what IRQs can be assigned to a particular peripheral device.

➔ **Available** The specified IRQ is available to be used by

PCI/PnP devices

➔ **Reserved** The specified IRQ is reserved for use by Legacy ISA devices

Available IRQ addresses options are:

- IRQ3
- IRQ4
- IRQ5
- IRQ7
- IRQ9
- IRQ10
- IRQ 11
- IRQ 14
- IRQ 15

➔ **DMA Channel# [Available]**

Use the **DMA Channel#** option to assign a specific DMA channel to a particular PCI/PnP device.

➔ **Available** **DEFAULT** The specified DMA is available to be used by PCI/PnP devices

➔ **Reserved** The specified DMA is reserved for use by Legacy ISA devices

Available DMA Channels are:

- DM Channel 0
- DM Channel 1
- DM Channel 3
- DM Channel 5
- DM Channel 6
- DM Channel 7

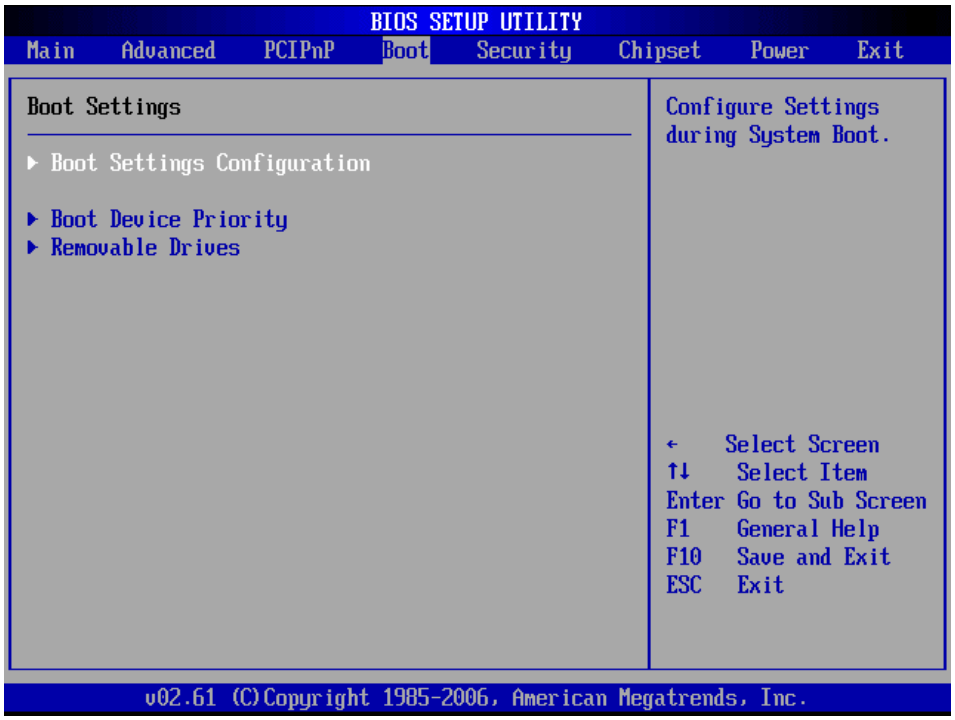
➔ **Reserved Memory Size [Disabled]**

Use the **Reserved Memory Size** BIOS option to specify the amount of memory that should be reserved for legacy ISA devices.

| | | | |
|---|---|---|---|
| ➔ | **Disabled** | **DEFAULT** | No memory block reserved for legacy ISA devices |
| ➔ | **16K** | | 16KB reserved for legacy ISA devices |
| ➔ | **32K** | | 32KB reserved for legacy ISA devices |
| ➔ | **64K** | | 54KB reserved for legacy ISA devices |

## 6.5 Boot

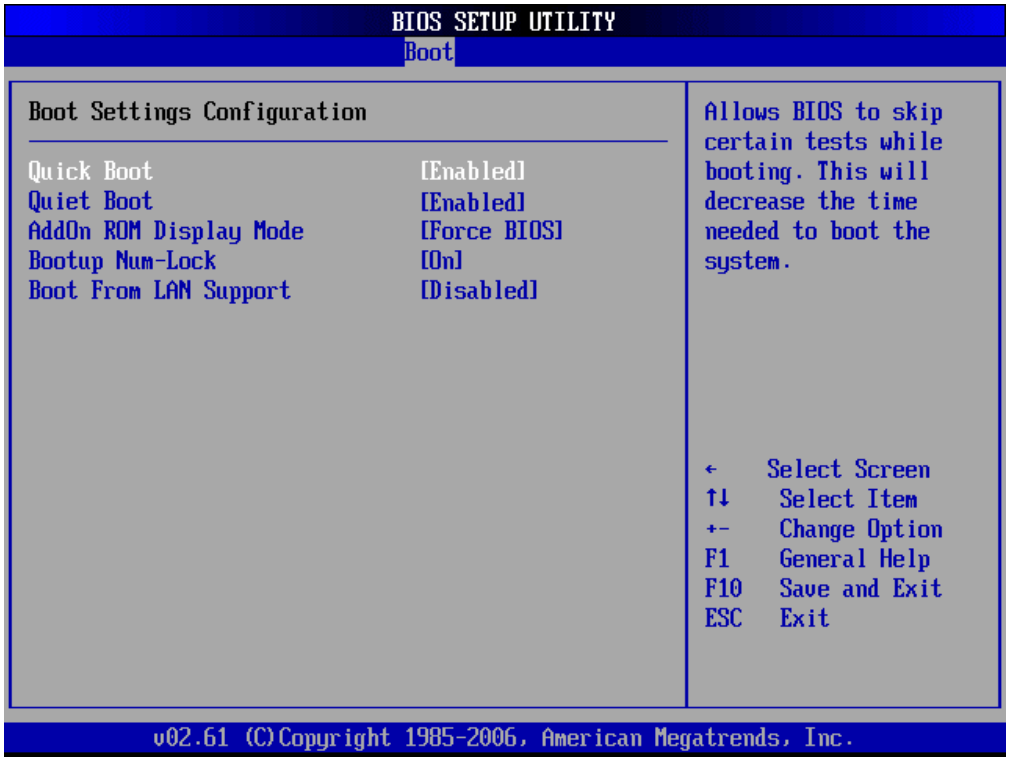
Use the **Boot** menu (**BIOS Menu 12**) to configure system boot options.




**BIOS Menu 12: Boot**

### 6.5.1 Boot Settings Configuration

Use the **Boot Settings Configuration** menu (**BIOS Menu 13**) to configure advanced system boot options.


BIOS SETUP UTILITY
Boot
Boot Settings Configuration
Quick Boot [Enabled]
Quiet Boot [Enabled]
AddOn ROM Display Mode [Force BIOS]
Bootup Num-Lock [On]
Boot From LAN Support [Disabled]
Allows BIOS to skip certain tests while booting. This will decrease the time needed to boot the system.
← Select Screen
↑↓ Select Item
+- Change Option
F1 General Help
F10 Save and Exit
ESC Exit
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**BIOS Menu 13: Boot Settings Configuration**

➔ **Quick Boot [Enabled]**

Use the **Quick Boot** BIOS option to make the computer speed up the boot process.

➔ **Disabled** No POST procedures are skipped

➔ **Enabled** **DEFAULT** Some POST procedures are skipped to decrease the system boot time

➔ **Quiet Boot [Enabled]**

Use the **Quiet Boot** BIOS option to select the screen display when the system boots.

➔ **Disabled** Normal POST messages displayed

➔ **Enabled** **DEFAULT** OEM Logo displayed instead of POST messages

➔ **AddOn ROM Display Mode [Force BIOS]**

Use the **AddOn ROM Display Mode** option to allow add-on ROM (read-only memory) messages to be displayed.

➔ **Force BIOS** **DEFAULT** The system forces third party BIOS to display during system boot.

➔ **Keep Current** The system displays normal information during system boot.

➔ **Bootup Num-Lock [On]**

Use the **Bootup Num-Lock** BIOS option to specify if the number lock setting must be modified during boot up.

➔ **Off** Does not enable the keyboard Number Lock automatically. To use the 10-keys on the keyboard, press the Number Lock key located on the upper left-hand corner of the 10-key pad. The Number Lock LED on the keyboard lights up when the Number Lock is engaged.

➔ **On** **DEFAULT** Allows the Number Lock on the keyboard to be enabled automatically when the computer system boots up. This allows the immediate use of the 10-key numeric keypad located on the right side of the keyboard. To confirm this, the Number Lock LED light on the keyboard is lit.

➔ **Boot From LAN Support [Disabled]**

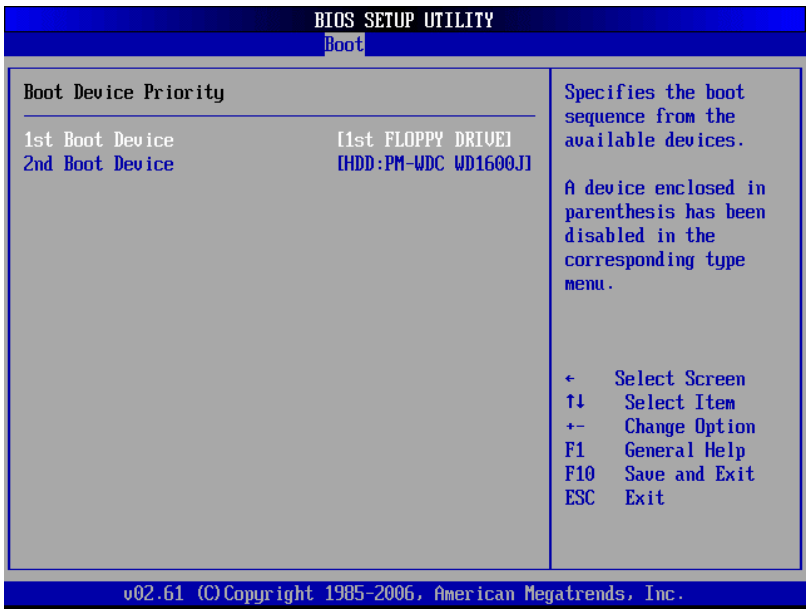
Use the **BOOT From LAN Support** option to enable the Broadcom PCIe GbE controller to boot the system.

| | | |
|---|---|---|
| ➔ **Disabled** | **DEFAULT** | Cannot be booted from a remote system through the Broadcom PCIe GbE controller |
| ➔ **Enabled** | | Can be booted from a remote system through the Broadcom PCIe GbE controller |

### 6.5.2 Boot Device Priority

Use the **Boot Device Priority** menu (**BIOS Menu 14**) to specify the boot sequence from the available devices. Possible boot devices may include:

- USB
- HDD
- CD/DVD


BIOS SETUP UTILITY
Boot
Boot Device Priority
1st Boot Device [1st FLOPPY DRIVE]
2nd Boot Device [HDD:PM-WDC WD1600J]
Specifies the boot sequence from the available devices.
A device enclosed in parenthesis has been disabled in the corresponding type menu.
← Select Screen
↑↓ Select Item
+- Change Option
F1 General Help
F10 Save and Exit
ESC Exit
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**BIOS Menu 14: Boot Device Priority Settings**

### 6.5.3 Removable Drives

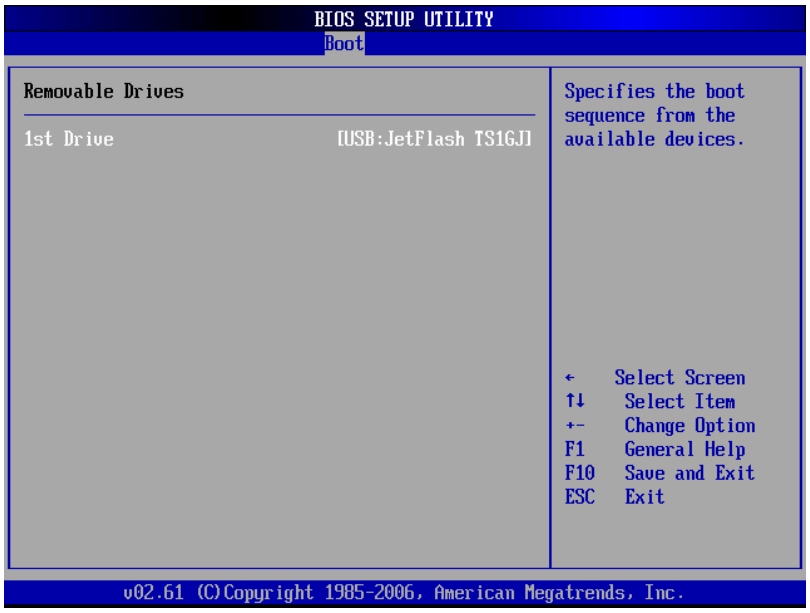
Use the **Removable Drives** menu (**BIOS Menu 15**) to specify the boot sequence of the available USB devices. When the menu is opened, the USB devices connected to the system are listed as shown below:

- 1st Drive [1st USB]
- 2nd Drive [2nd USB]

**NOTE:**

Only the drives connected to the system are shown. For example, if only one USB device is connected only "**1st Drive**" is listed.

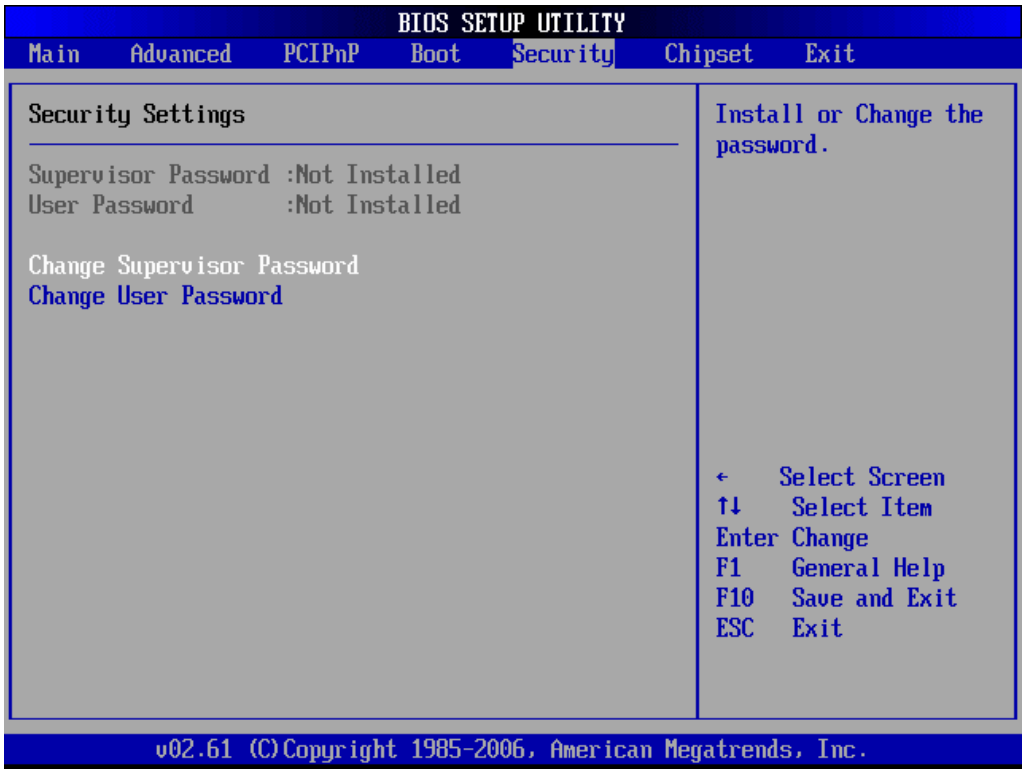
The boot sequence from the available devices is selected. If the "**1st Drive**" option is selected a list of available USB devices is shown. Select the first USB device the system boots from. If the "**1st Drive**" is not used for booting this option may be disabled.




**BIOS Menu 15: Removable Drives**

## 6.6 Security

Use the **Security** menu (**BIOS Menu 16**) to set system and user passwords.




**BIOS Menu 16: Security**

➔ **Change Supervisor Password**

Use the **Change Supervisor Password** to set or change a supervisor password. The default for this option is **Not Installed**. If a supervisor password must be installed, select this field and enter the password. After the password has been added, **Install** appears next to **Change Supervisor Password**.

➔ **Change User Password**

Use the **Change User Password** to set or change a user password. The default for this option is **Not Installed**. If a user password must be installed, select this field and enter the password. After the password has been added, **Install** appears next to **Change User Password**.

## 6.7 Chipset

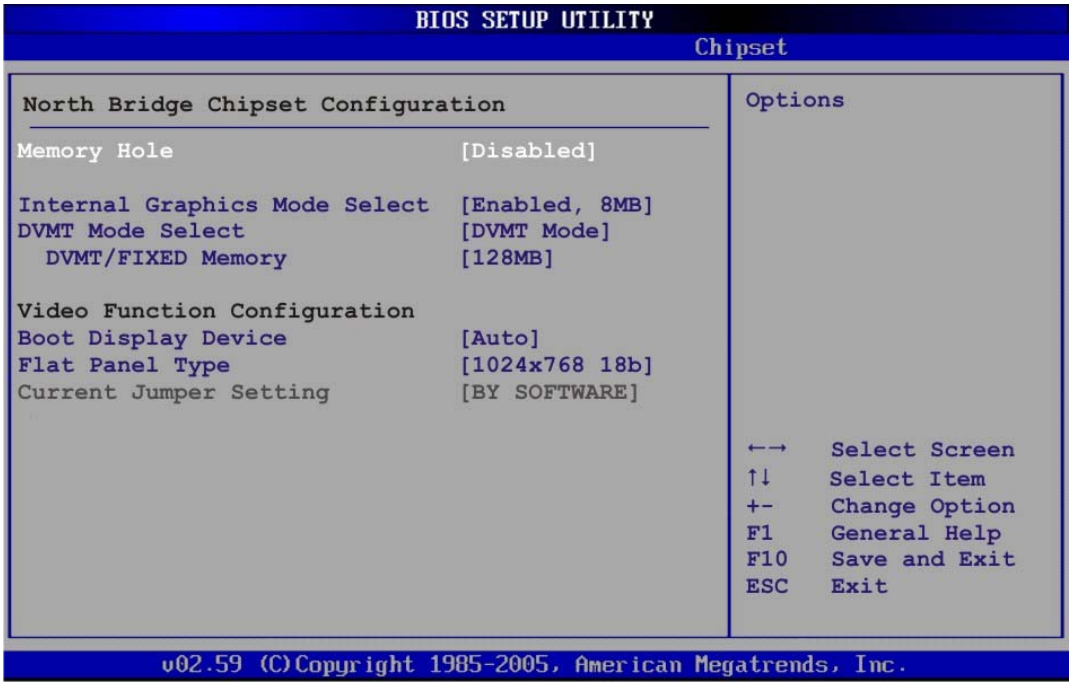
Use the **Chipset** menu to access the Northbridge and Southbridge menus.

**WARNING!**

Setting the wrong values for the Chipset BIOS selections in the Chipset BIOS menu may cause the system to malfunction.

### 6.7.1 Northbridge Configuration

Use the **Northbridge Chipset Configuration** menu (**BIOS Menu 17**) to configure the Northbridge chipset.




**BIOS Menu 17:Northbridge Chipset Configuration**

➔ **Memory Hole [Disabled]**

Use the **Memory Hole** option to reserve memory space between 15MB and 16MB for ISA expansion cards that require a specified area of memory to work properly. If an older ISA expansion card is used, please refer to the documentation that came with the card to see if it is necessary to reserve the space.

| | | |
|---|---|---|
| ➔ **Disabled** | **DEFAULT** | Memory is not reserved for ISA expansion cards |
| ➔ **15MB – 16MB** | | Between 15MB and 16MB of memory is reserved for ISA expansion cards |

➔ **Internal Graphics Mode Select [Enable, 8MB]**

Use the **Internal Graphic Mode Select** option to specify the amount of system memory that can be used by the Internal graphics device.

| | | |
|---|---|---|
| ➔ **Disable** | | |
| ➔ **Enable, 1MB** | | 1MB of memory used by internal graphics device |
| ➔ **Enable, 8MB** | **DEFAULT** | 8MB of memory used by internal graphics device |

➔ **DVMT Mode Select [DVMT Mode]**

Use the **DVMT Mode Select** option to select the Intel Dynamic Video Memory Technology (DVMT) operating mode.

| | | |
|---|---|---|
| ➔ **Fixed Mode** | | A fixed portion of graphics memory is reserved as graphics memory. |
| ➔ **DVMT Mode** | **DEFAULT** | Graphics memory is dynamically allocated according to the system and graphics needs. |
| ➔ **Combo Mode** | | A fixed portion of graphics memory is reserved as graphics memory. If more memory is needed, graphics memory is dynamically allocated |

according to the system and graphics needs.

➔ **DVMT/FIXED Memory [128MB]**

Use the **DVMT/FIXED Memory** option to specify the maximum amount of memory that can be allocated as graphics memory. This option can only be configured for if **DVMT Mode** or **Fixed Mode** is selected in the **DVMT Mode Selec**t option. If **Combo Mode** is selected, the maximum amount of graphics memory is 128MB. Configuration options are listed below.

- 64MB
- 128MB **DEFAULT**

➔ **Boot Display Device [Auto]**

Use the **Boot Display Device** option to select the display device used by the system when it boots. Configuration options are listed below.

- Auto **DEFAULT**
- CRT
- LFP

➔ **Flat Panel Type [1024x768 18b]**

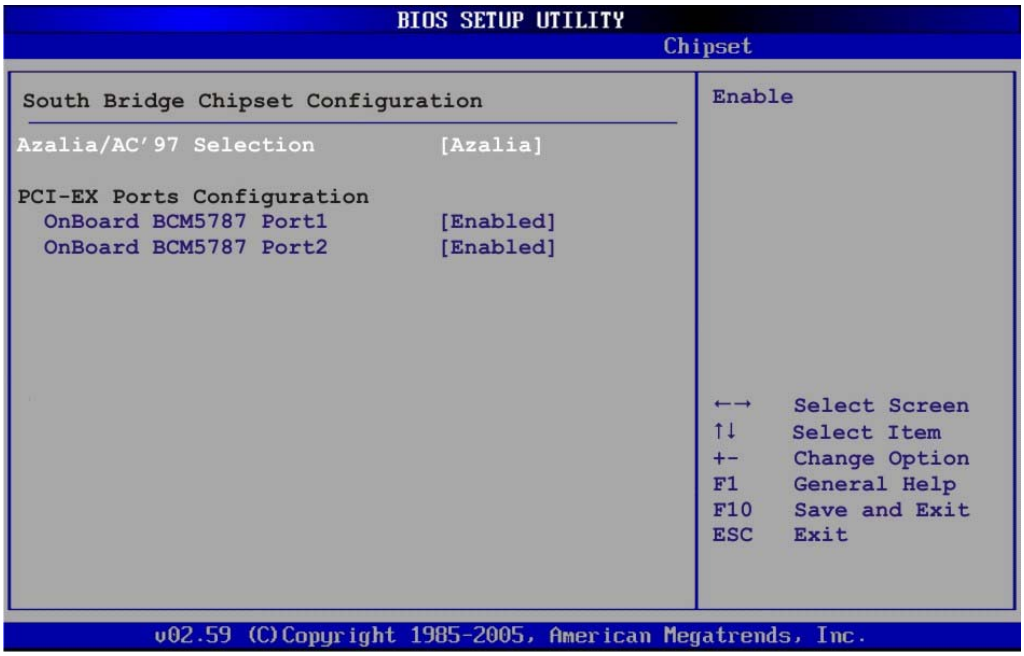
Use the **Flat Panel Type** option to select the type of flat panel connected to the system. Configuration options are listed below.

- 640x480 18b
- 800x600 18b
- 1024x768 18b
- 1024x768 24b
- 1280x1024 48b
- 1600x1200 48b
- 1280x768 18b
- 1280x800 18b
- 1366x768 24b
- 1440x900 36b

- 1440x900 48b

### 6.7.2 Southbridge Configuration

The **Southbridge Configuration** menu (**BIOS Menu 18**) allows the Southbridge chipset to be configured.




**BIOS Menu 18:Southbridge Chipset Configuration**

➔ **Azalia/AC97 Selection [Azalia]**

Use the **Azalia/AC97 Selection** option to select the audio codec.

| | | |
|---|---|---|
| ➔ **Azalia** | **DEFAULT** | The HD Audio is enabled |
| ➔ **AC'97 Audio Only** | | The onboard AC'97 is enabled |
| ➔ **All Disabled** | | The AC'97 and HD Audio are all disabled. |

➔ **Onboard BCM5787 Port n [Enabled]**

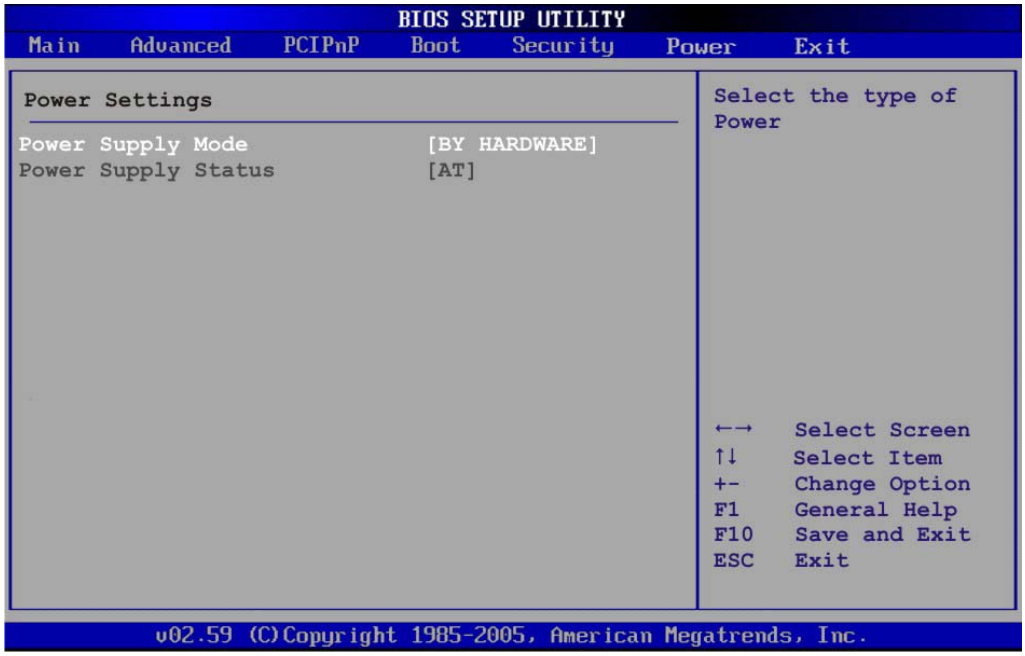
Use the **Onboard BCM5787 Port n** option to determine enable or disable the nth Broadcom BCM5787 PCIe GbE port.

➔ **Disabled** nth PCI Express port disabled.

➔ **Enabled** **DEFAULT** nth PCI Express port enabled.

## 6.8 Power

The **Power** menu (**BIOS Menu 19**) allows the advanced power management options to be configured.




**BIOS Menu 19:Power**

➔ **Power Supply Mode [BY HARDWARE]**

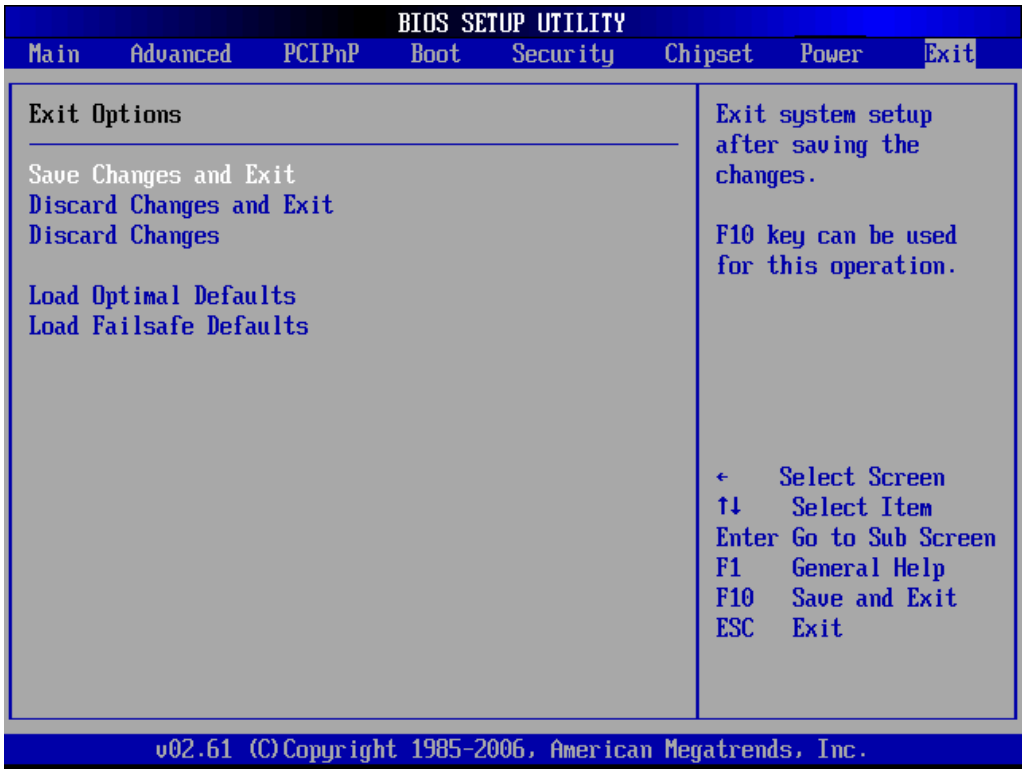
Use the **Power Supply Mode** BIOS to specify how the power supply mode.

➔ **AT** The power supply mode is set to AT.

| | | |
|---|---|---|
| ➔ | **ATX** | If selected, the following appears with values that can be selected:<br>➔ **Power Button Mode**<br>➔ **Restore on AC Power Loss**<br>➔ **Suspend Mode**<br>➔ **RTC Resume**<br>➔ **RI Resume**<br>➔ **Resume On KeyBoard/Mouse** |
| ➔ | **BY HARDWARE** **DEFAULT** | The power supply mode is set by the onboard jumper. |

## 6.9 Exit

Use the **Exit** menu (**BIOS Menu 20**) to load default BIOS values, optimal failsafe values and to save configuration changes.


BIOS SETUP UTILITY
Main Advanced PCIPnP Boot Security Chipset Power Exit
Exit Options
Save Changes and Exit
Discard Changes and Exit
Discard Changes
Load Optimal Defaults
Load Failsafe Defaults
Exit system setup after saving the changes.
F10 key can be used for this operation.
← Select Screen
↑↓ Select Item
Enter Go to Sub Screen
F1 General Help
F10 Save and Exit
ESC Exit
v02.61 (C)Copyright 1985-2006, American Megatrends, Inc.

**BIOS Menu 20: Exit**

➔ **Save Changes and Exit**

Use the **Save Changes and Exit** option to save the changes made to the BIOS options and to exit the BIOS configuration setup program.

➔ **Discard Changes and Exit**

Use the **Discard Changes and Exit** option to exit the BIOS configuration setup program without saving the changes made to the system.

➔ **Discard Changes**

Use the **Discard Changes** option to discard the changes and remain in the BIOS configuration setup program.

➔ **Load Optimal Defaults**

Use the **Load Optimal Defaults** option to load the optimal default values for each of the parameters on the Setup menus. **F9 key can be used for this operation.**

➔ **Load Failsafe Defaults**

Use the **Load Failsafe Defaults** option to load failsafe default values for each of the parameters on the Setup menus. **F8 key can be used for this operation.**

Chapter

7

# Software Drivers

## 7.1 Available Software Drivers

**NOTE:**

The content of the CD may vary throughout the life cycle of the product and is subject to change without prior notice. Visit the IEI website or contact technical support for the latest updates.

The following drivers can be installed on the system:

- Intel® chipset driver
- VGA driver
- LAN drivers
- Audio driver
- SATA driver

Installation instructions are given below.

## 7.2 Driver CD Auto-run

All the drivers for the PCISA-9102 are on the CD that came with the system. To install the drivers, please follow the steps below.

**Step 1:** Insert the CD into a CD drive connected to the system.

**NOTE:**

If the system does not initiate the "autorun" program when the CD is inserted, click the **Start** button, select **Run**, then type **X:\autorun.exe** (where **X:** is the system CD drive) to access the IEI Driver CD main menu.

**Step 2:** The driver main menu appears (**Figure 7-1**).

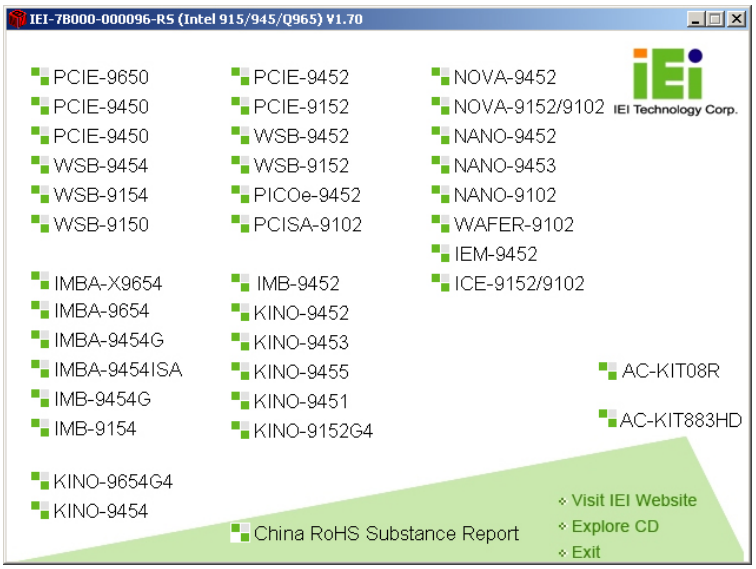



**Figure 7-1: Introduction Screen**

**Step 3:** Click PCISA-9102.

**Step 4:** A new screen with a list of available drivers appears (**Figure 7-2**).

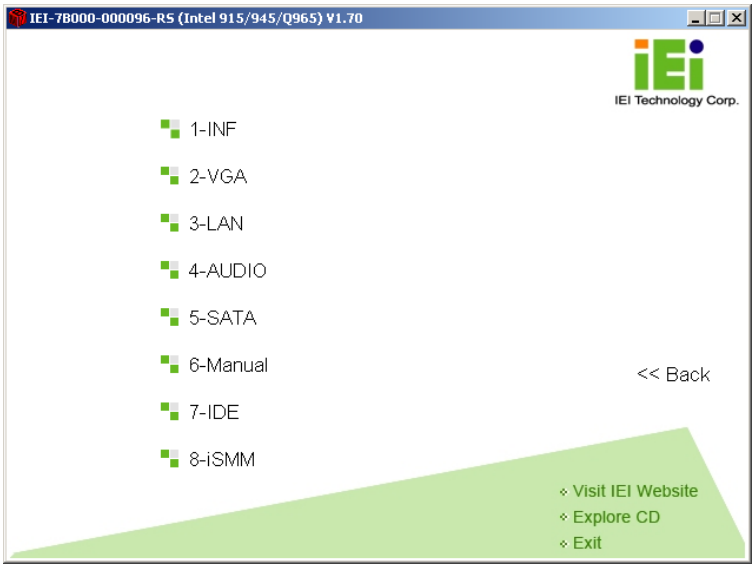



**Figure 7-2: Available Drivers**

**Step 5:** Select the driver to install from the list in **Figure 7-2**. Detailed driver installation instructions follow below.

## 7.3 Chipset Driver Installation

To install the chipset driver, please follow the steps below:

**Step 1:** Insert the CD into the system that contains the PCISA-9102 board. Open the **1-INF** directory and locate the icon for the **infinst_autol.exe** installation file. Once located, use the mouse to double click the icon.

**Step 2:** The “InstallShield Wizard Preparation Screen” in **Figure 7-3** appears.

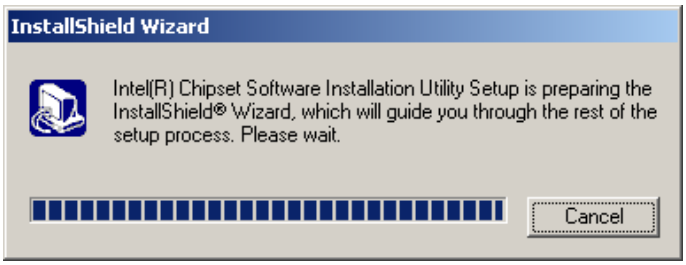

InstallShield Wizard
Intel(R) Chipset Software Installation Utility Setup is preparing the InstallShield® Wizard, which will guide you through the rest of the setup process. Please wait.
Cancel

**Figure 7-3: InstallShield Wizard Preparation Screen**

**Step 3:** The “Welcome” window in **Figure 7-4** appears next.

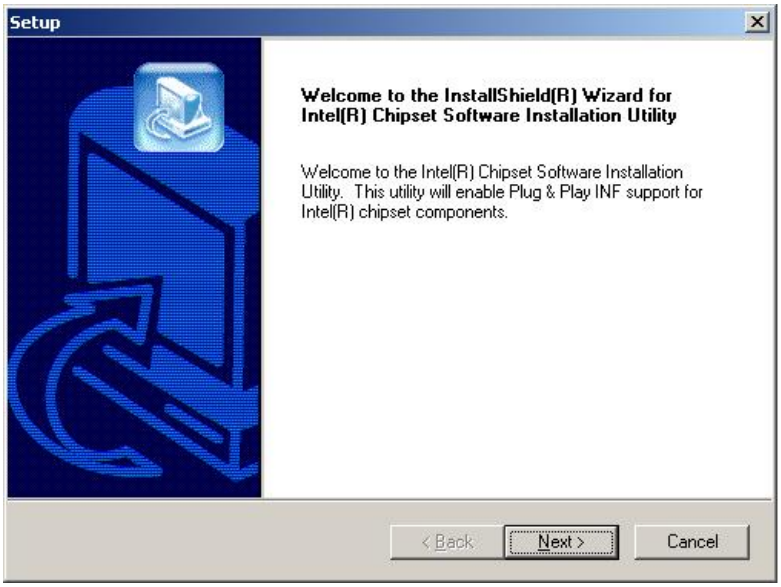

Setup
Welcome to the InstallShield(R) Wizard for Intel(R) Chipset Software Installation Utility
Welcome to the Intel(R) Chipset Software Installation Utility. This utility will enable Plug & Play INF support for Intel(R) chipset components.
< Back
Next >
Cancel

**Figure 7-4: Welcome Screen**

**Step 4:** Click "**NEXT**" and the license agreement shown in **Figure 7-5** appears.

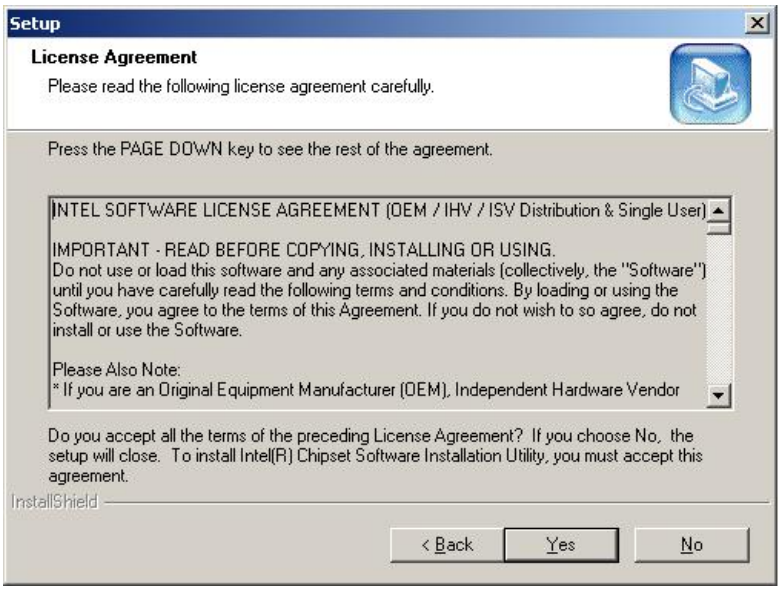

Setup
License Agreement
Please read the following license agreement carefully.
Press the PAGE DOWN key to see the rest of the agreement.
INTEL SOFTWARE LICENSE AGREEMENT (OEM / IHV / ISV Distribution & Single User)
IMPORTANT - READ BEFORE COPYING, INSTALLING OR USING.
Do not use or load this software and any associated materials (collectively, the "Software") until you have carefully read the following terms and conditions. By loading or using the Software, you agree to the terms of this Agreement. If you do not wish to so agree, do not install or use the Software.
Please Also Note:
* If you are an Original Equipment Manufacturer (OEM), Independent Hardware Vendor
Do you accept all the terms of the preceding License Agreement? If you choose No, the setup will close. To install Intel(R) Chipset Software Installation Utility, you must accept this agreement.
InstallShield
< Back
Yes
No

**Figure 7-5: License Agreement**

**Step 5:** Agree to the license terms by clicking "**YES**". The "**Readme**" in **Figure 7-6** appears.

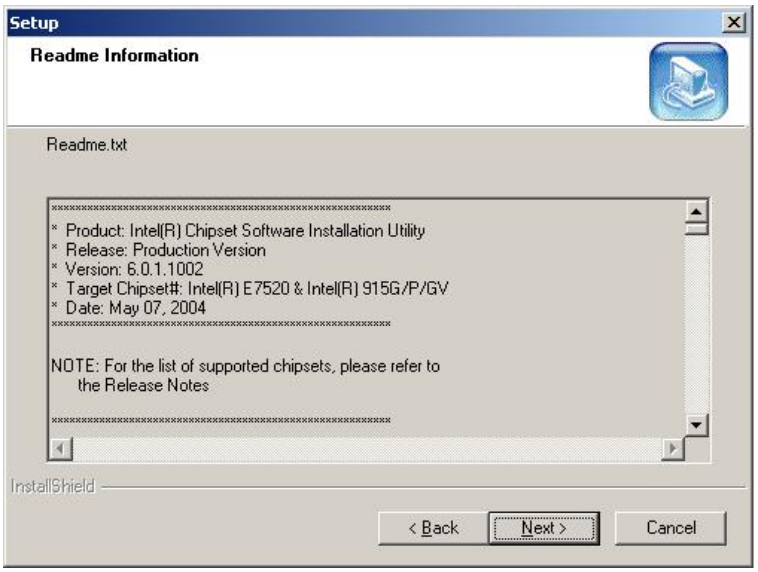

Setup
Readme Information
Readme.txt
* Product: Intel(R) Chipset Software Installation Utility
* Release: Production Version
* Version: 6.0.1.1002
* Target Chipset#: Intel(R) E7520 & Intel(R) 915G/P/GV
* Date: May 07, 2004
NOTE: For the list of supported chipsets, please refer to the Release Notes
InstallShield
< Back
Next >
Cancel

**Figure 7-6: Readme Information**

**Step 6:** Click "**YES**". The driver is installed on the computer. After the installation is

complete, the installation complete screen shown in **Figure 7-7** appears. Select the preferred option and click "**FINISH**" to complete the installation process.

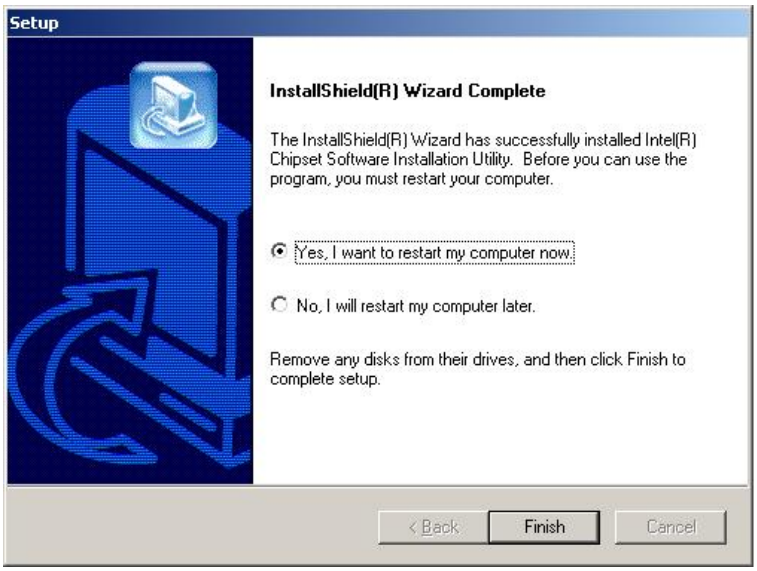

Setup
InstallShield(R) Wizard Complete
The InstallShield(R) Wizard has successfully installed Intel(R) Chipset Software Installation Utility. Before you can use the program, you must restart your computer.
Yes, I want to restart my computer now.
No, I will restart my computer later.
Remove any disks from their drives, and then click Finish to complete setup.
< Back
Finish
Cancel

**Figure 7-7: Restart the Computer**

## 7.4 VGA Driver

To install the VGA driver, please follow the steps below:

**Step 1:** Insert the Utility CD that came with the motherboard into the system CD drive.

**Step 2:** Open the **X:\2-VGA\WIN2K_XP** directory (where **X:** is the system CD drive) and double-click the **win2k_xp1420.exe** installation file.

**Step 3:** The Starting Install Shield Wizard appears (**Figure 7-8**).

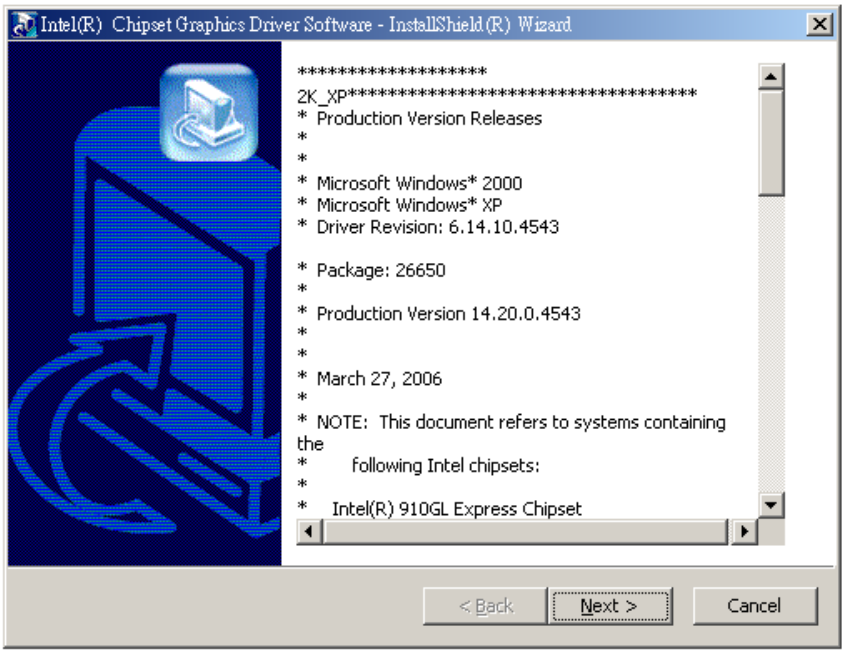



**Figure 7-8: Starting Install Shield Wizard Screen**

**Step 4:** The Preparing Setup window appears next (**Figure 7-9**).

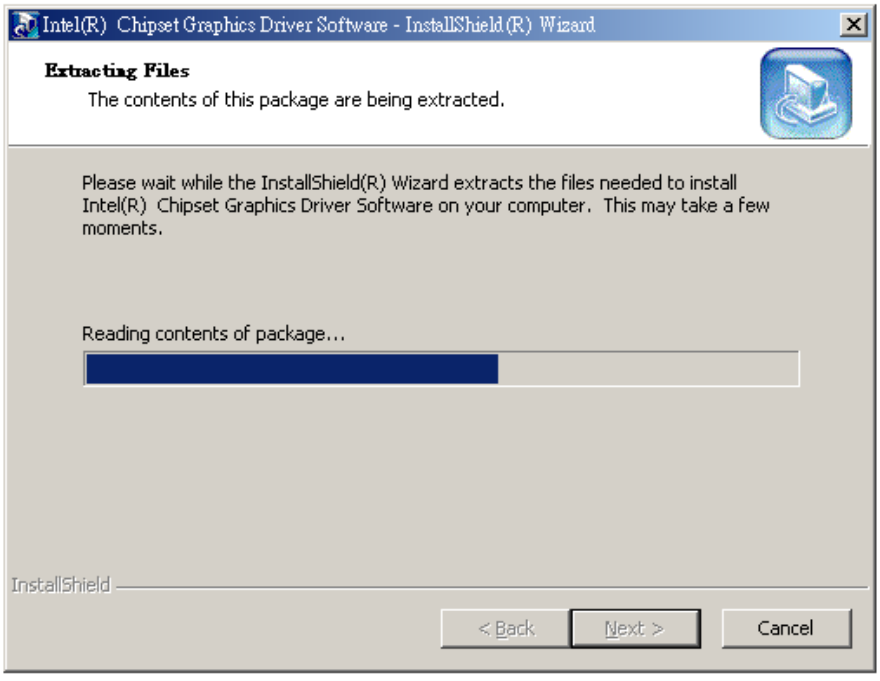

Intel(R) Chipset Graphics Driver Software - InstallShield (R) Wizard
Extracting Files
The contents of this package are being extracted.
Please wait while the InstallShield(R) Wizard extracts the files needed to install Intel(R) Chipset Graphics Driver Software on your computer. This may take a few moments.
Reading contents of package...
InstallShield
< Back
Next >
Cancel

**Figure 7-9: Preparing Setup Screen**

**Step 5:** A Welcome screen shown in **Figure 7-10** appears. Click **NEXT** to continue the installation.

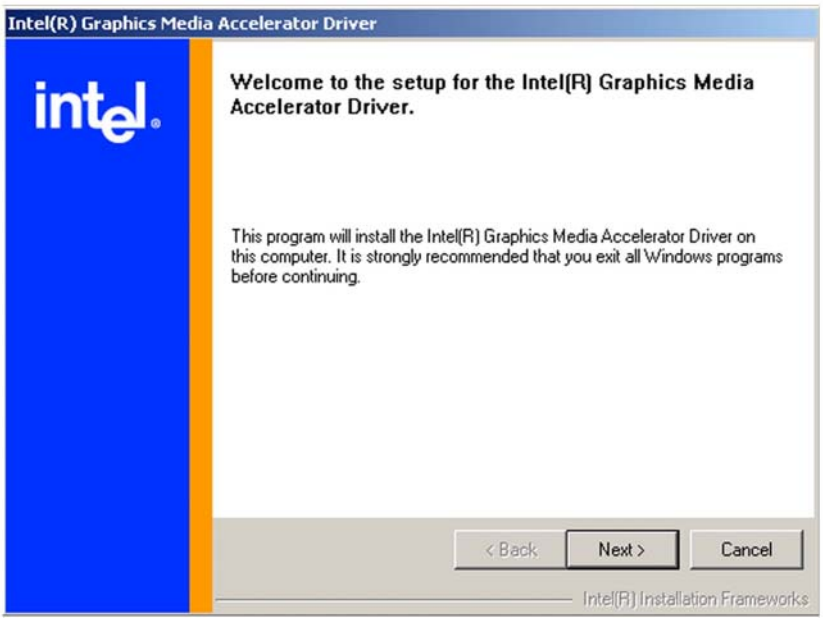

Intel(R) Graphics Media Accelerator Driver
intel
Welcome to the setup for the Intel(R) Graphics Media Accelerator Driver.
This program will install the Intel(R) Graphics Media Accelerator Driver on this computer. It is strongly recommended that you exit all Windows programs before continuing.
< Back
Next >
Cancel
Intel(R) Installation Frameworks

**Figure 7-10: VGA Driver Installation Welcome Screen**

**Step 6:** A license agreement shown in **Figure 7-11** appears. Read through the license agreement.

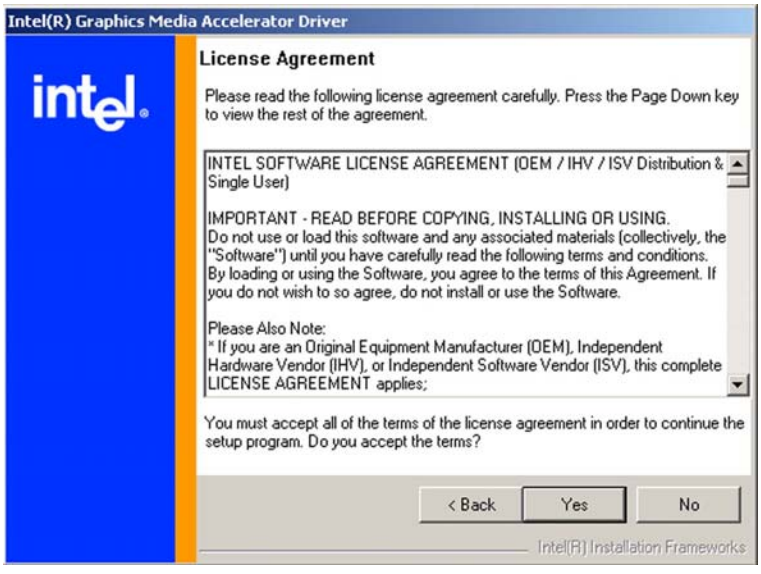

Intel(R) Graphics Media Accelerator Driver
intel
License Agreement
Please read the following license agreement carefully. Press the Page Down key to view the rest of the agreement.
INTEL SOFTWARE LICENSE AGREEMENT (OEM / IHV / ISV Distribution & Single User)
IMPORTANT - READ BEFORE COPYING, INSTALLING OR USING.
Do not use or load this software and any associated materials (collectively, the "Software") until you have carefully read the following terms and conditions. By loading or using the Software, you agree to the terms of this Agreement. If you do not wish to so agree, do not install or use the Software.
Please Also Note:
* If you are an Original Equipment Manufacturer (OEM), Independent Hardware Vendor (IHV), or Independent Software Vendor (ISV), this complete LICENSE AGREEMENT applies;
You must accept all of the terms of the license agreement in order to continue the setup program. Do you accept the terms?
< Back
Yes
No
Intel(R) Installation Frameworks

**Figure 7-11: VGA Driver License Agreement**

**Step 7:** Accept the terms and conditions stipulated in the license agreement by clicking the "**YES**" button (**Figure 7-11**). The installation notice shown in **Figure 7-12** appears.

**Figure 7-12: VGA Driver Installing Notice**

**Step 8:** After the driver installation process is complete, a confirmation screen shown in **Figure 7-13** appears.

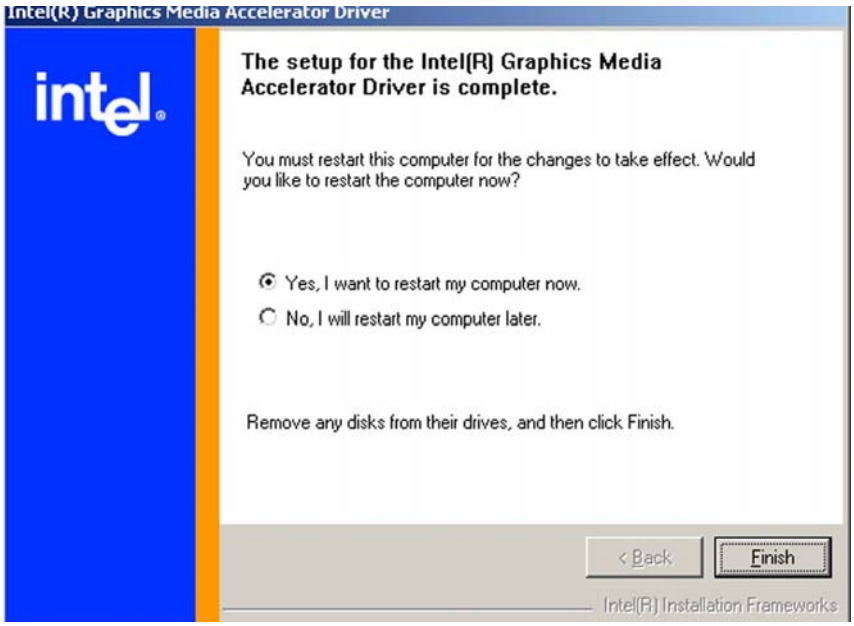

Intel(R) Graphics Media Accelerator Driver
intel
The setup for the Intel(R) Graphics Media Accelerator Driver is complete.
You must restart this computer for the changes to take effect. Would you like to restart the computer now?
Yes, I want to restart my computer now.
No, I will restart my computer later.
Remove any disks from their drives, and then click Finish.
< Back
Finish
Intel(R) Installation Frameworks

**Figure 7-13: VGA Driver Installation Complete**

**Step 9:** The confirmation screen shown in **Figure 7-13** allows user to restart the computer immediately after the installation is complete or to restart the computer later. For the settings to take effect the computer must be restarted. Once decided when to restart the computer, click the "**FINISH**" button.

## 7.5 Broadcom LAN Driver (for GbE LAN) Installation

To install the Broadcom LAN driver, please follow the steps below.

**Step 1:** Open **Windows Control Panel (Figure 7-14**).

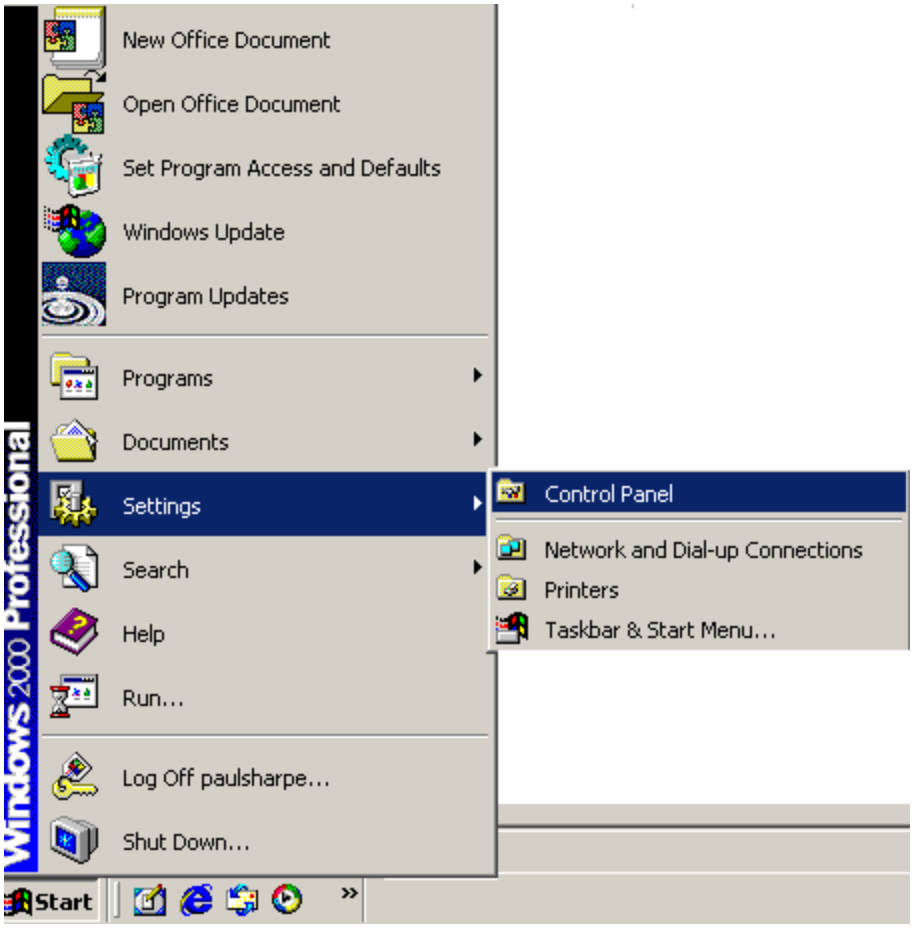



**Figure 7-14: Access Windows Control Panel**

**Step 2:** Double click the **System** icon (**Figure 7-15**).

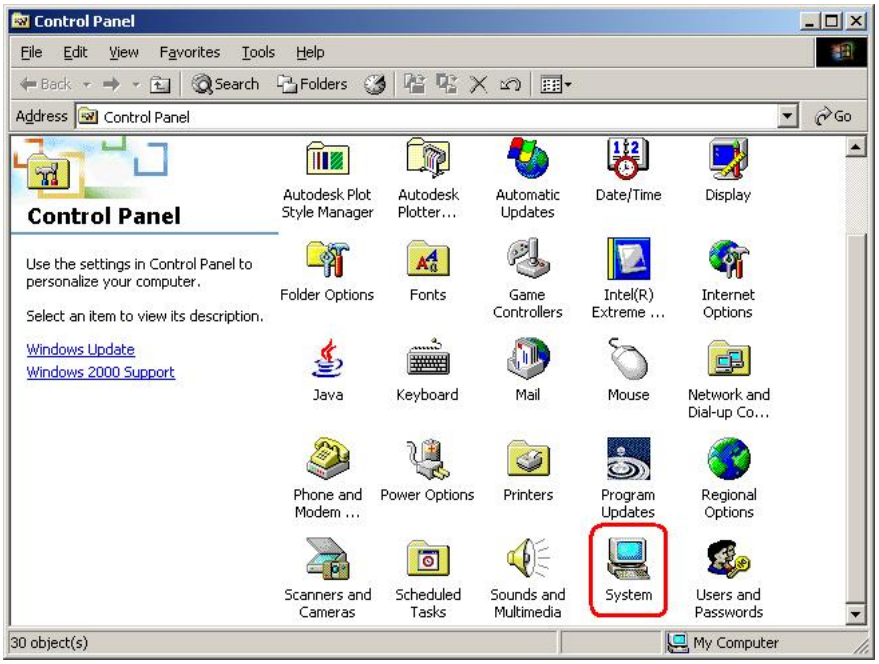



**Figure 7-15: Double Click the System Icon**

**Step 3:** Double click the **Device Manager** tab (**Figure 7-16**).

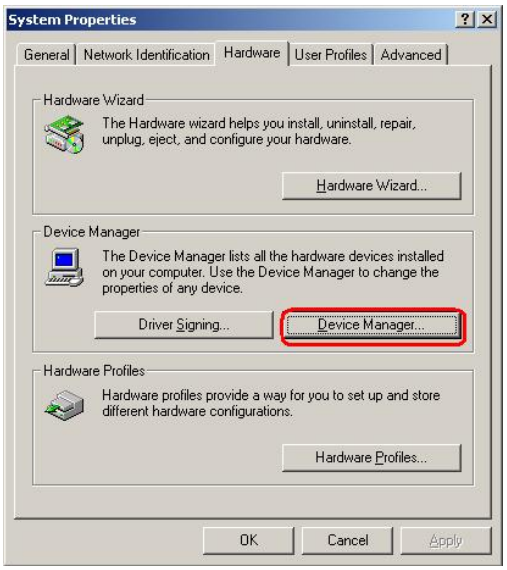

System Properties
General Network Identification Hardware User Profiles Advanced
Hardware Wizard
The Hardware wizard helps you install, uninstall, repair, unplug, eject, and configure your hardware.
Hardware Wizard...
Device Manager
The Device Manager lists all the hardware devices installed on your computer. Use the Device Manager to change the properties of any device.
Driver Signing...
Device Manager...
Hardware Profiles
Hardware profiles provide a way for you to set up and store different hardware configurations.
Hardware Profiles...
OK
Cancel
Apply

**Figure 7-16: Double Click the Device Manager Tab**

**Step 4:** A list of system hardware devices appears (**Figure 7-17**).

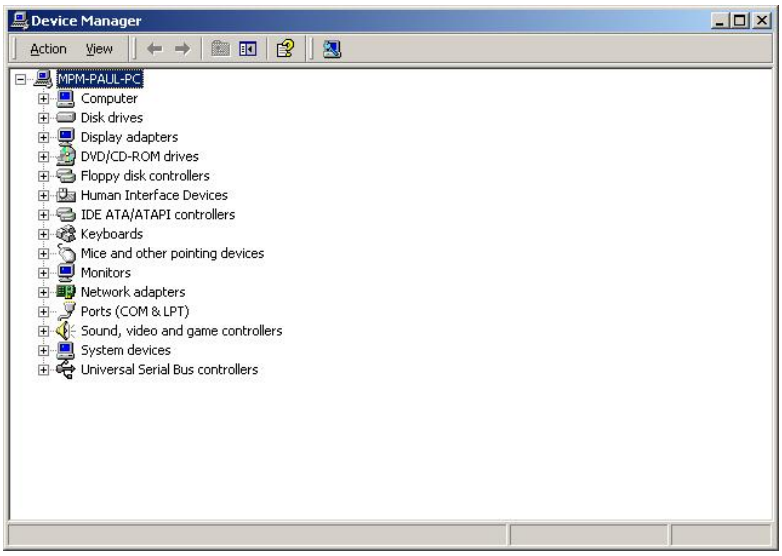



**Figure 7-17: Device Manager List**

**Step 5:** Double click the listed device that has question marks next to it. (This means Windows does not recognize the device).

**Step 6:** The **Device Driver Wizard** appears (**Figure 7-18**). Click **NEXT** to continue.

Upgrade Device Driver Wizard
Install Hardware Device Drivers
A device driver is a software program that enables a hardware device to work with an operating system.
This wizard upgrades drivers for the following hardware device:
532DD36TA0379HannStar U171
Upgrading to a newer version of a device driver may add functionality to or improve the performance of this device.
What do you want the wizard to do?
Search for a suitable driver for my device (recommended)
Display a list of the known drivers for this device so that I can choose a specific driver
< Back
Next >
Cancel

**Figure 7-18: Search for Suitable Driver**

**Step 7:** Select "**Specify a Location**" in the **Locate Driver Files** window (**Figure 7-19**).

Click **NEXT** to continue.

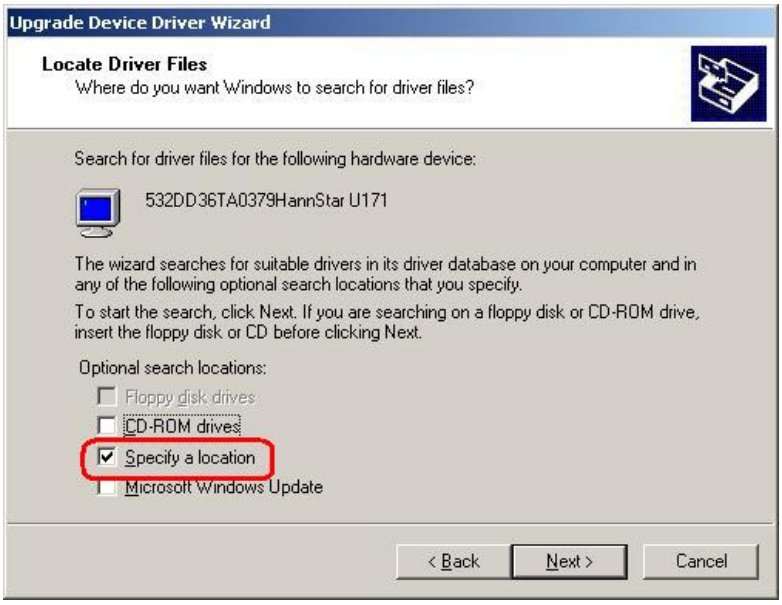

Upgrade Device Driver Wizard
Locate Driver Files
Where do you want Windows to search for driver files?
Search for driver files for the following hardware device:
532DD36TA0379HannStar U171
The wizard searches for suitable drivers in its driver database on your computer and in any of the following optional search locations that you specify.
To start the search, click Next. If you are searching on a floppy disk or CD-ROM drive, insert the floppy disk or CD before clicking Next.
Optional search locations:
Floppy disk drives
CD-ROM drives
Specify a location
Microsoft Windows Update
< Back
Next >
Cancel

**Figure 7-19: Locate Driver Files**

**Step 8:** Select the proper OS folder under the "**X:\3-LAN\BROADCOM BCM57xx Drivers**" directory (**Figure 7-20**) in the location browsing window, where "**X:\"** is the system CD drive.

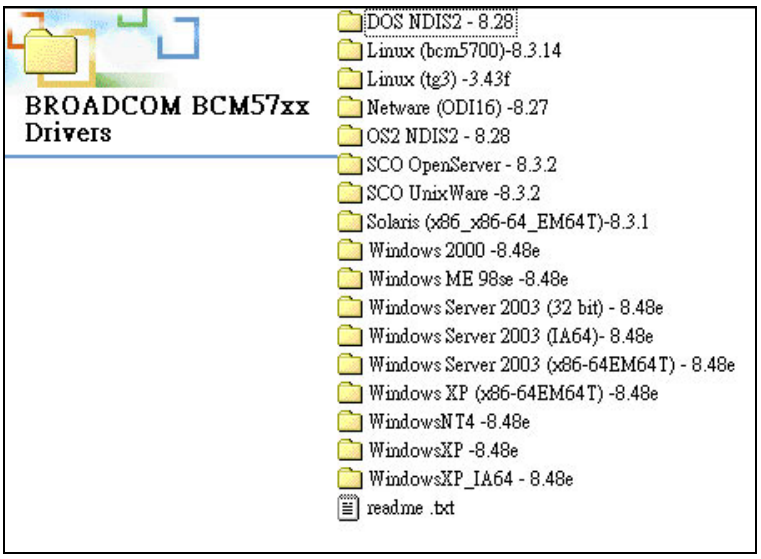



**Figure 7-20: Location Browsing Window**

**Step 9:** Click **OK** to continue. A driver files location menu window appears. Click **NEXT** to continue. The driver is installed.

## 7.6 Intel® Matrix Storage Manager Driver Installation

To install the Intel® Matrix Storage Manager driver, please follow the steps below:

**Step 1:** Select **SATA** from the list in **Figure 7-2**.

**Step 2:** A new window opens (Figure 7-21).

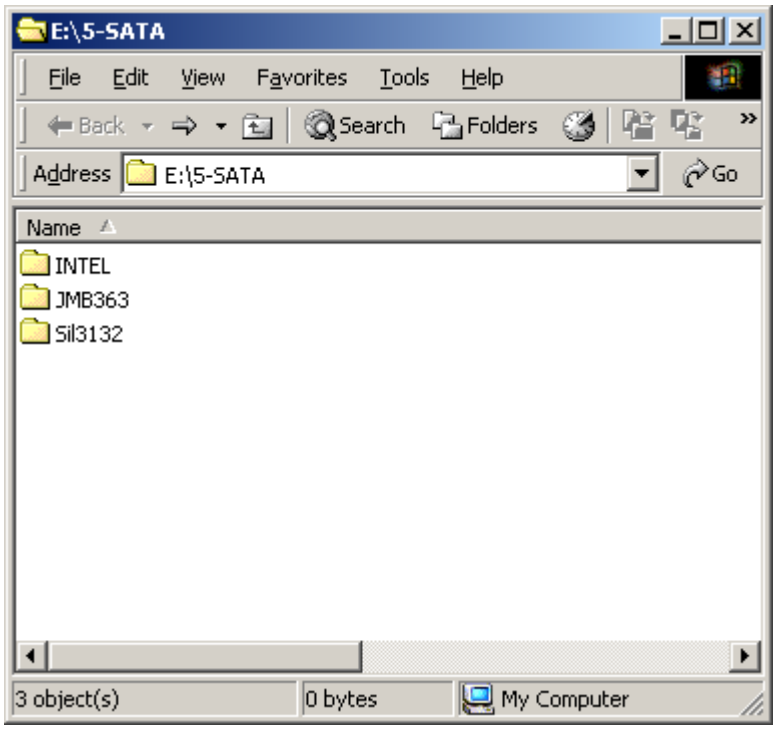



**Figure 7-21: SATA RAID Driver Installation Program**

**Step 3:** Double-click the **INTEL** folder.

**Step 4:** Double-click the **iata62_cd.exe** program icon in Figure 7-22.

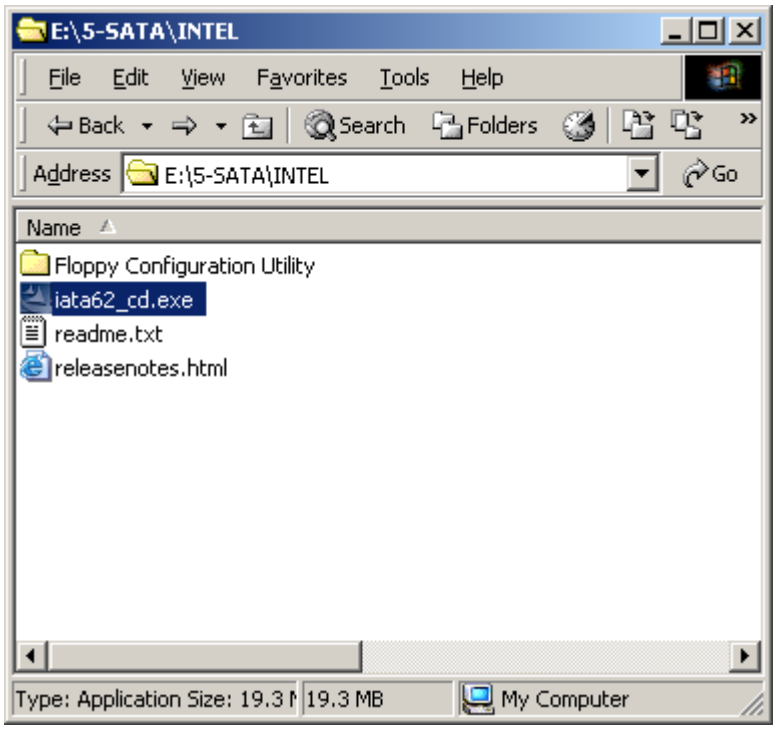



**Figure 7-22: SATA RAID Setup Program Icon**

**Step 5:** Figure 7-23 shows the **InstallShield Wizard** preparing to guide the user through the rest of the process.

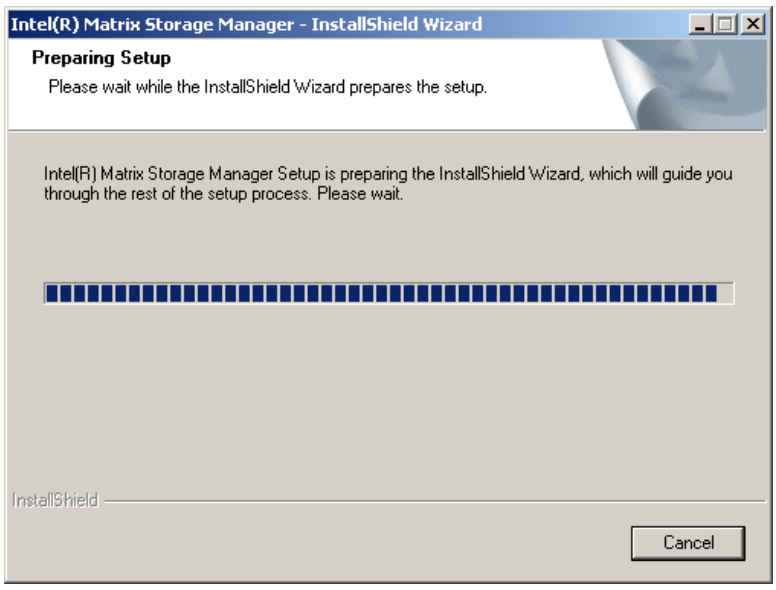

Intel(R) Matrix Storage Manager - InstallShield Wizard
Preparing Setup
Please wait while the InstallShield Wizard prepares the setup.
Intel(R) Matrix Storage Manager Setup is preparing the InstallShield Wizard, which will guide you through the rest of the setup process. Please wait.
InstallShield
Cancel

**Figure 7-23: InstallShield Wizard Setup Screen**

**Step 6:** Figure 7-24 shows the **Matrix Storage Manager** software configuring the installation process.

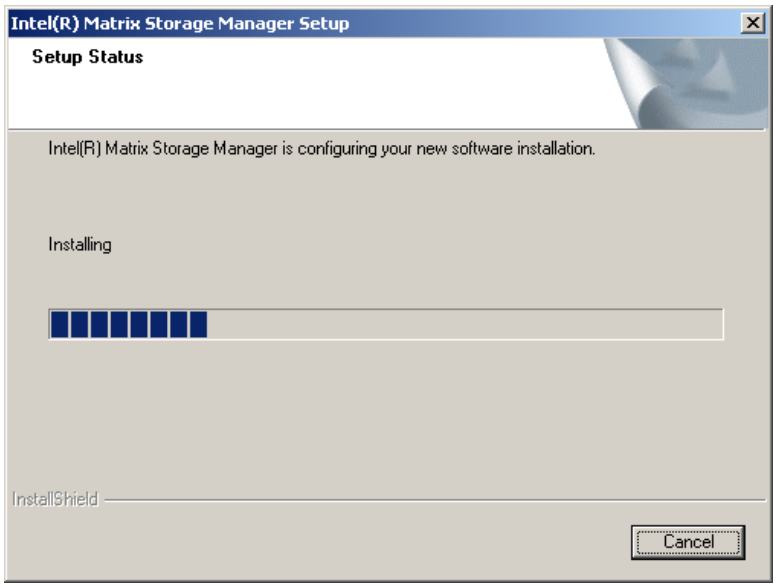



**Figure 7-24: Matrix Storage Manager Setup Screen**

**Step 7:** Figure 7-25 shows the **Matrix Storage Manager** welcome screen.

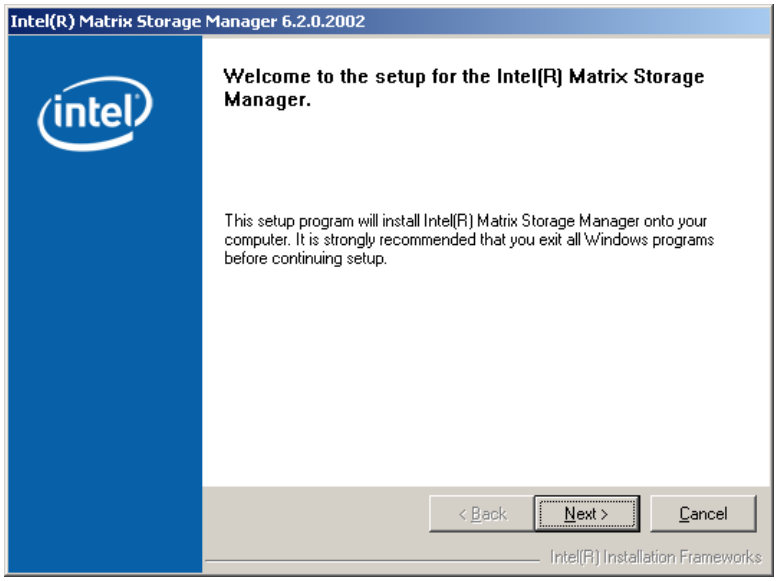

Intel(R) Matrix Storage Manager 6.2.0.2002
intel
Welcome to the setup for the Intel(R) Matrix Storage Manager.
This setup program will install Intel(R) Matrix Storage Manager onto your computer. It is strongly recommended that you exit all Windows programs before continuing setup.
< Back
Next >
Cancel
Intel(R) Installation Frameworks

**Figure 7-25: Matrix Storage Manager Welcome Screen**

**Step 8:** Click **NEXT** and a warning appears (Figure 7-26). Read the warning carefully and

decide whether or not to continue the installation process.

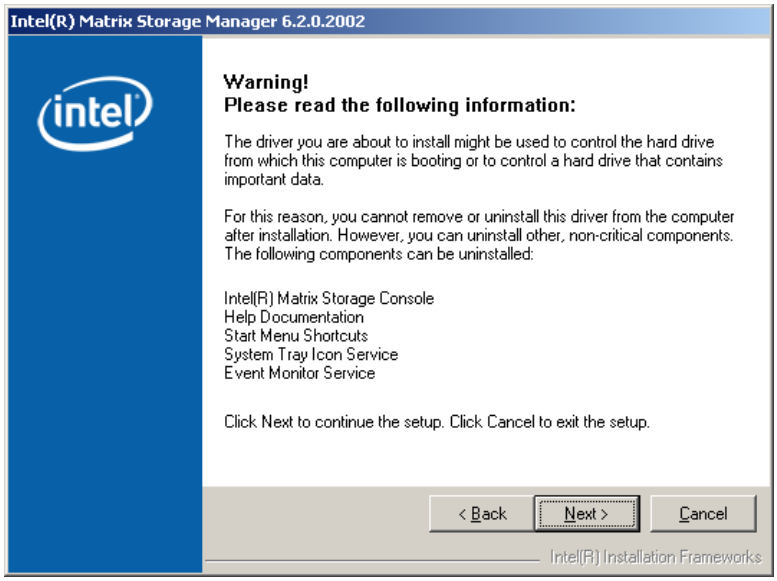

Intel(R) Matrix Storage Manager 6.2.0.2002
Warning!
Please read the following information:
The driver you are about to install might be used to control the hard drive from which this computer is booting or to control a hard drive that contains important data.
For this reason, you cannot remove or uninstall this driver from the computer after installation. However, you can uninstall other, non-critical components. The following components can be uninstalled:
Intel(R) Matrix Storage Console
Help Documentation
Start Menu Shortcuts
System Tray Icon Service
Event Monitor Service
Click Next to continue the setup. Click Cancel to exit the setup.
< Back
Next >
Cancel
Intel(R) Installation Frameworks

**Figure 7-26: Matrix Storage Manager Warning Screen**

**Step 9:** Click **NEXT** and a license agreement appears (Figure 7-27).

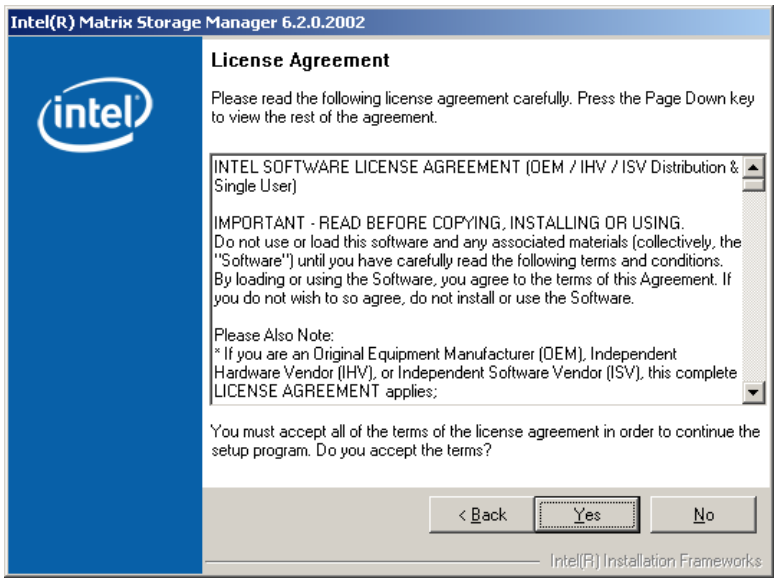

Intel(R) Matrix Storage Manager 6.2.0.2002
License Agreement
Please read the following license agreement carefully. Press the Page Down key to view the rest of the agreement.
INTEL SOFTWARE LICENSE AGREEMENT (OEM / IHV / ISV Distribution & Single User)
IMPORTANT - READ BEFORE COPYING, INSTALLING OR USING.
Do not use or load this software and any associated materials (collectively, the "Software") until you have carefully read the following terms and conditions. By loading or using the Software, you agree to the terms of this Agreement. If you do not wish to so agree, do not install or use the Software.
Please Also Note:
* If you are an Original Equipment Manufacturer (OEM), Independent Hardware Vendor (IHV), or Independent Software Vendor (ISV), this complete LICENSE AGREEMENT applies;
You must accept all of the terms of the license agreement in order to continue the setup program. Do you accept the terms?
< Back
Yes
No
Intel(R) Installation Frameworks

**Figure 7-27: Matrix Storage Manager License Agreement**

**Step 10:** Read the license agreement. To accept the terms and conditions stipulated in the license agreement shown, click **YES** and the Readme information file shown in Figure 7-28 appears.

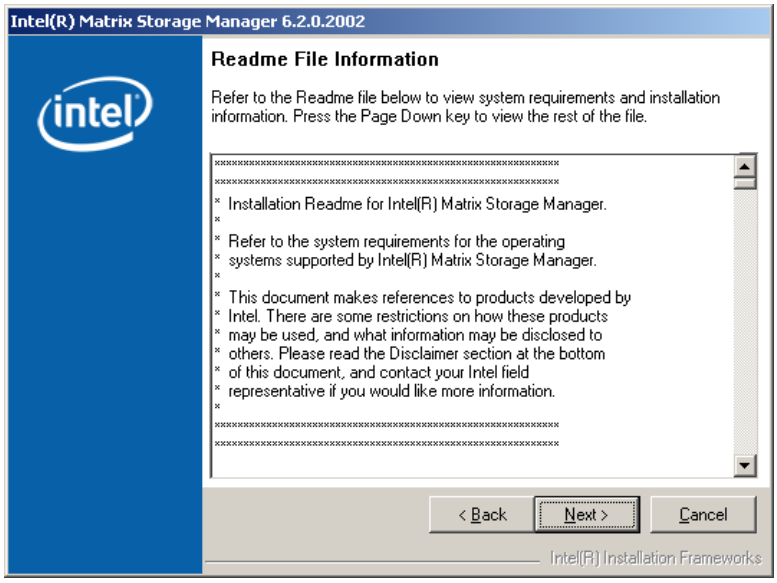

Intel(R) Matrix Storage Manager 6.2.0.2002
Readme File Information
Refer to the Readme file below to view system requirements and installation information. Press the Page Down key to view the rest of the file.
* Installation Readme for Intel(R) Matrix Storage Manager.
* Refer to the system requirements for the operating
* systems supported by Intel(R) Matrix Storage Manager.
* This document makes references to products developed by
* Intel. There are some restrictions on how these products
* may be used, and what information may be disclosed to
* others. Please read the Disclaimer section at the bottom
* of this document, and contact your Intel field
* representative if you would like more information.
< Back
Next >
Cancel
Intel(R) Installation Frameworks

**Figure 7-28: Matrix Storage Manager Readme File**

**Step 11:** Read the Readme file information and click **NEXT**.

**Step 12:** After the driver installation process is complete, a confirmation screen appears (Figure 7-29).

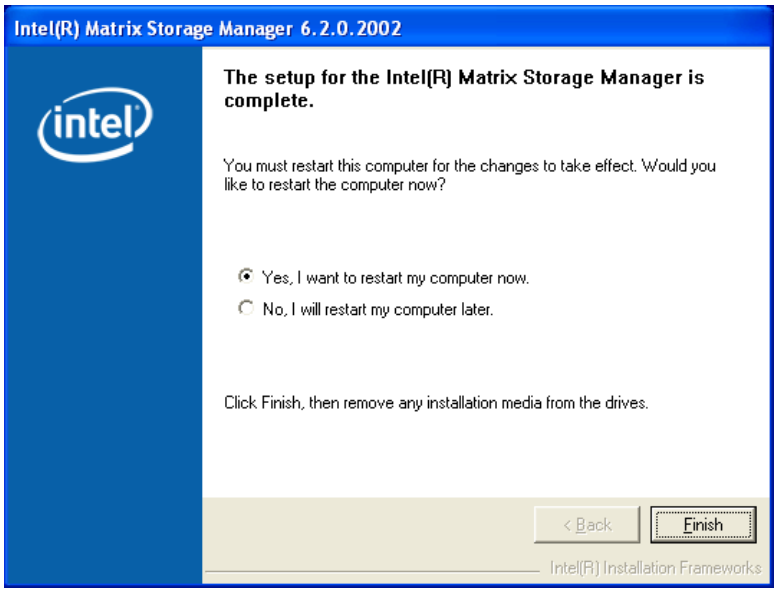

Intel(R) Matrix Storage Manager 6.2.0.2002
The setup for the Intel(R) Matrix Storage Manager is complete.
You must restart this computer for the changes to take effect. Would you like to restart the computer now?
Yes, I want to restart my computer now.
No, I will restart my computer later.
Click Finish, then remove any installation media from the drives.
< Back
Finish
Intel(R) Installation Frameworks

**Figure 7-29: Matrix Storage Manager Setup Complete**

**Step 13:** The confirmation screen offers the option of restarting the computer now or later. For the settings to take effect, the computer must be restarted. Click **FINISH** to restart the computer.

Appendix

A

# BIOS Configuration Options

## A.1 BIOS Configuration Options

Below is a list of BIOS configuration options described in **Chapter 6**.

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Appendix

B

# Terminology

| | |
|---|---|
| AC ’97 | Audio Codec 97 (AC’97) refers to a codec standard developed by Intel® in 1997. |
| ACPI | Advanced Configuration and Power Interface (ACPI) is an OS-directed configuration, power management, and thermal management interface. |
| AHCI | Advanced Host Controller Interface (AHCI) is a SATA Host controller register-level interface. |
| ATA | The Advanced Technology Attachment (ATA) interface connects storage devices including hard disks and CD-ROM drives to a computer. |
| APM | The Advanced Power Management (APM) application program interface (API) enables the inclusion of power management in the BIOS. |
| ARMD | An ATAPI Removable Media Device (ARMD) is any ATAPI device that supports removable media, besides CD and DVD drives. |
| ASKIR | Amplitude Shift Keyed Infrared (ASKIR) is a form of modulation that represents a digital signal by varying the amplitude (“volume”) of the signal. A low amplitude signal represents a binary 0, while a high amplitude signal represents a binary 1. |
| BIOS | The Basic Input/Output System (BIOS) is firmware that is first run when the computer is turned on and can be configured by the end user |
| CODEC | The Compressor-Decompressor (CODEC) encodes and decodes digital audio data on the system. |
| CompactFlash® | CompactFlash® is a solid-state storage device. CompactFlash® devices use flash memory in a standard size enclosure. Type II is thicker than Type I, but a Type II slot can support both types. |
| CMOS | Complimentary metal-oxide-conductor is an integrated circuit used in chips like static RAM and microprocessors. |

| | |
|---|---|
| COM | COM refers to serial ports. Serial ports offer serial communication to expansion devices. The serial port on a personal computer is usually a male DB-9 connector. |
| DAC | The Digital-to-Analog Converter (DAC) converts digital signals to analog signals. |
| DDR | Double Data Rate refers to a data bus transferring data on both the rising and falling edges of the clock signal. |
| DMA | Direct Memory Access (DMA) enables some peripheral devices to bypass the system processor and communicate directly with the system memory. |
| DIMM | Dual Inline Memory Modules are a type of RAM that offer a 64-bit data bus and have separate electrical contacts on each side of the module. |
| DIO | The digital inputs and digital outputs are general control signals that control the on/off circuit of external devices or TTL devices. Data can be read or written to the selected address to enable the DIO functions. |
| EHCI | The Enhanced Host Controller Interface (EHCI) specification is a register-level interface description for USB 2.0 Host Controllers. |
| FSB | The Front Side Bus (FSB) is the bi-directional communication channel between the processor and the Northbridge chipset. |
| GbE | Gigabit Ethernet (GbE) is an Ethernet version that transfers data at 1.0 Gbps and complies with the IEEE 802.3-2005 standard. |
| GPIO | General purpose input |
| HDD | Hard disk drive (HDD) is a type of magnetic, non-volatile computer storage device that stores digitally encoded data. |
| ICH | The Input/Ouput Controll Hub (ICH) is an Intel® Southbridge chipset. |
| IrDA | Infrared Data Association (IrDA) specify infrared data transmission |

| | |
|---|---|
| | protocols used to enable electronic devices to wirelessly communicate with each other. |
| L1 Cache | The Level 1 Cache (L1 Cache) is a small memory cache built into the system processor. |
| L2 Cache | The Level 2 Cache (L2 Cache) is an external processor memory cache. |
| LCD | Liquid crystal display (LCD) is a flat, low-power display device that consists of two polarizing plates with a liquid crystal panel in between. |
| LVDS | Low-voltage differential signaling (LVDS) is a dual-wire, high-speed differential electrical signaling system commonly used to connect LCD displays to a computer. |
| MAC | The Media Access Control (MAC) protocol enables several terminals or network nodes to communicate in a LAN, or other multipoint networks. |
| PCIe | PCI Express (PCIe) is a communications bus that uses dual data lines for full-duplex (two-way) serial (point-to-point) communications between the SBC components and/or expansion cards and the SBC chipsets. Each line has a 2.5 Gbps data transmission rate and a 250 MBps sustained data transfer rate. |
| POST | The Power-on Self Test (POST) is the pre-boot actions the system performs when the system is turned-on. |
| RAM | Random Access Memory (RAM) is volatile memory that loses data when power is lost. RAM has very fast data transfer rates compared to other storage like hard drives. |
| SATA | Serial ATA (SATA) is a serial communications bus designed for data transfers between storage devices and the computer chipsets. The SATA bus has transfer speeds up to 1.5 Gbps and the SATA II bus has data transfer speeds of up to 3.0 Gbps. |
| S.M.A.R.T | Self Monitoring Analysis and Reporting Technology (S.M.A.R.T) refers |

| | |
|---|---|
| | to automatic status checking technology implemented on hard disk drives. |
| UART | Universal Asynchronous Receiver-transmitter (UART) is responsible for asynchronous communications on the system and manages the system's serial communication (COM) ports. |
| UHCI | The Universal Host Controller Interface (UHCI) specification is a register-level interface description for USB 1.1 Host Controllers. |
| USB | The Universal Serial Bus (USB) is an external bus standard for interfacing devices. USB 1.1 supports 12Mbps data transfer rates, while USB 2.0 supports 480Mbps data transfer rates. |
| VGA | The Video Graphics Array (VGA) is a graphics display system developed by IBM. |

Appendix

C

# Watchdog Timer

**NOTE:**

The following discussion applies to DOS environment. IEI support is contacted or the IEI website visited for specific drivers for more sophisticated operating systems, e.g., Windows and Linux.

The Watchdog Timer is provided to ensure that standalone systems can always recover from catastrophic conditions that cause the CPU to crash. This condition may have occurred by external EMI or a software bug. When the CPU stops working correctly, Watchdog Timer either performs a hardware reset (cold boot) or a Non-Maskable Interrupt (NMI) to bring the system back to a known state.

A BIOS function call (INT 15H) is used to control the Watchdog Timer:

**INT 15H:**

| **AH – 6FH Sub-function:** | |
|---|---|
| AL – 2: | Sets the Watchdog Timer's period. |
| BL: | Time-out value (Its unit-second is dependent on the item "Watchdog Timer unit select" in CMOS setup). |

**Table C-1: AH-6FH Sub-function**

Call sub-function 2 to set the time-out period of Watchdog Timer first. If the time-out value is not zero, the Watchdog Timer starts counting down. While the timer value reaches zero, the system resets. To ensure that this reset condition does not occur, calling sub-function 2 must periodically refresh the Watchdog Timer. However, the Watchdog timer is disabled if the time-out value is set to zero.

A tolerance of at least 10% must be maintained to avoid unknown routines within the operating system (DOS), such as disk I/O that can be very time-consuming.

**NOTE:**

When exiting a program it is necessary to disable the Watchdog Timer, otherwise the system resets.

## Example program:

```
; INITIAL TIMER PERIOD COUNTER
;
W_LOOP:

        MOV     AX, 6F02H       ;setting the time-out value
        MOV     BL, 30          ;time-out value is 48 seconds
        INT      15H
 ;
; ADD THE APPLICATION PROGRAM HERE
;
        CMP      EXIT_AP, 1     ;is the application over?
        JNE      W_LOOP         ;No, restart the application

        MOV     AX, 6F02H       ;disable Watchdog Timer
        MOV     BL, 0           ;
        INT      15H
;
; EXIT ;
```

Appendix

D

# Address Mapping

## D.1 IO Address Map

| I/O address Range | Description |
|---|---|
| 000-01F | DMA Controller |
| 020-021 | Interrupt Controller |
| 040-043 | System time |
| 060-06F | Keyboard Controller |
| 070-07F | System CMOS/Real time Clock |
| 080-09F | DMA Controller |
| 0A0-0A1 | Interrupt Controller |
| 0C0-0DF | DMA Controller |
| 0F0-0FF | Numeric data processor |
| 1F0-1F7 | Primary IDE Channel |
| 2E8-2EF | Serial Port 4 (COM4) |
| 2F8-2FF | Serial Port 2 (COM2) |
| 378-37F | Parallel Printer Port 1 (LPT1) |
| 3B0-3BB | Intel 910GMLE Graphics Controller |
| 3C0-3DF | Intel 910GMLE Graphics Controller |
| 3E8-3EF | Serial Port 3 (COM3) |
| 3F6-3F6 | Primary IDE Channel |
| 3F7-3F7 | Standard floppy disk controller |
| 3F8-3FF | Serial Port 1 (COM1) |

**Table D-1: IO Address Map**

## D.2 1st MB Memory Address Map

| Memory address | Description |
|---|---|
| 00000-9FFFF | System memory |
| A0000-BFFFF | VGA buffer |
| F0000-FFFFF | System BIOS |
| 1000000- | Extend BIOS |

**Table D-2: 1st MB Memory Address Map**

## D.3 IRQ Mapping Table

| IRQ | Description | IRQ | Description |
|---|---|---|---|
| IRQ0 | System Timer | IRQ8 | RTC clock |
| IRQ1 | Keyboard | IRQ9 | ACPI |
| IRQ2 | Available | IRQ10 | COM 4 |
| IRQ3 | COM2 | IRQ11 | COM 3 |
| IRQ4 | COM1 | IRQ12 | PS/2 mouse |
| IRQ5 | SMBus Controller | IRQ13 | FPU |
| IRQ6 | FDC | IRQ14 | Primary IDE |
| IRQ7 | Parallel port | IRQ15 | Secondary IDE |

**Table D-3: IRQ Mapping Table**

## D.4 DMA Channel Assignments

| Channel | Function |
|---|---|
| 0 | Available |
| 1 | Available |
| 2 | Floppy disk (8-bit transfer) |
| 3 | Available |
| 4 | Cascade for DMA controller 1 |
| 5 | Available |
| 6 | Available |
| 7 | Available |

**Table D-4: DMA Channel Assignments**

Appendix

E

# Compatibility

**NOTE:**

The compatible items described here have been tested by the IEI R&D team and found to be compatible with the PCISA-9102.

## E.1 Compatible Processors

The following Socket 478 90nm processors have been successfully tested on the PCISA-9102.

| CPU | Model Number | Frequency | FSB |
|---|---|---|---|
| Intel® Pentium® M | 745 | 1.80 GHz | 400 MHz |
| Intel® Pentium® M | 725 | 1.60 GHz | 400 MHz |
| Intel® Celeron® M | 373 | 1.00 GHz | 400 MHz |
| Intel® Celeron® M | 370 | 1.50 GHz | 400 MHz |
| Intel® Celeron® M | 320 | 1.30 GHz | 400 MHz |

## E.2 Compatible Memory Modules

**NOTE:**

The memory modules listed below have been tested on the PCISA-9102 other memory modules that comply with the specifications may also work on the PCISA-9102 but have not been tested.

The following memory modules have been successfully tested on the PCISA-9102.

| Manufacturer | Model No. | Capacity | Speed |
|---|---|---|---|
| Kingston | KVR533D2N4/512 | 512 MB | 533 MHz |
| KingBOX | DDR2 512MB 533MHz | 512 MB | 533 MHz |
| ADATA | DDR2 667(5) 512MX8 | 512 MB | 667 MHz |
| Corsair | V512MB533D2 | 512 MB | 533 MHz |
| UMAX | DIMM, 512MB, DDRII800, 64X8 | 512 MB | 800 MHz |
| Unigen | UG64T6400L8DU-6AL | 512 MB | 667 MHz |
| Transcend | 1GB DDR2 667 | 1 GB | 667 MHz |
| Transcend | 2GB DDR2 800 | 2 GB | 800 MHz |
| Apacer | 512MB UNB PC2-5300 CL5 | 512 MB | 667 MHz |
| PK | 512 MB DDR2 800MHz | 512 MB | 800 MHz |
| TwinMOS | 8D25JK-TT | 512 MB | 800 MHz |
| DSL | 512MB DDR2 800MHz CL5 | 512 MB | 800 MHz |

Appendix

F

# Hazardous Materials Disclosure

## F.1 Hazardous Material Disclosure Table for IPB Products Certified as RoHS Compliant Under 2002/95/EC Without Mercury

The details provided in this appendix are to ensure that the product is compliant with the Peoples Republic of China (China) RoHS standards. The table below acknowledges the presences of small quantities of certain materials in the product, and is applicable to China RoHS only.

A label will be placed on each product to indicate the estimated “Environmentally Friendly Use Period” (EFUP). This is an estimate of the number of years that these substances would “not leak out or undergo abrupt change.” This product may contain replaceable sub-assemblies/components which have a shorter EFUP such as batteries and lamps. These components will be separately marked.

Please refer to the table on the next page.

| Part Name | Toxic or Hazardous Substances and Elements | | | | | |
|---|---|---|---|---|---|---|
| | Lead (Pb) | Mercury (Hg) | Cadmium (Cd) | Hexavalent Chromium (CR(VI)) | Polybrominated Biphenyls (PBB) | Polybrominated Diphenyl Ethers (PBDE) |
| Housing | x | O | O | O | O | x |
| Display | X | O | O | O | O | X |
| Printed Circuit Board | X | O | O | O | O | X |
| Metal Fasteners | X | O | O | O | O | O |
| Cable Assembly | X | O | O | O | O | X |
| Fan Assembly | X | O | O | O | O | X |
| Power Supply Assemblies | X | O | O | O | O | X |
| Battery | O | O | O | O | O | O |

O: This toxic or hazardous substance is contained in all of the homogeneous materials for the part is below the limit requirement in SJ/T11363-2006

X: This toxic or hazardous substance is contained in at least one of the homogeneous materials for this part is above the limit requirement in SJ/T11363-2006

此附件旨在确保本产品符合中国 RoHS 标准。以下表格标示此产品中某有毒物质的含量符合中国 RoHS 标准规定的限量要求。

本产品上会附有"环境友好使用期限"的标签，此期限是估算这些物质"不会有泄漏或突变"的年限。本产品可能包含有较短的环境友好使用期限的可替换元件，像是电池或灯管，这些元件将会单独标示出来。

| 部件名称 | 有毒有害物质或元素 | | | | | |
|---|---|---|---|---|---|---|
| | 铅 (Pb) | 汞 (Hg) | 镉 (Cd) | 六价铬 (CR(VI)) | 多溴联苯 (PBB) | 多溴二苯醚 (PBDE) |
| 壳体 | X | O | O | O | O | X |
| 显示 | X | O | O | O | O | X |
| 印刷电路板 | X | O | O | O | O | X |
| 金属螺帽 | X | O | O | O | O | O |
| 电缆组装 | X | O | O | O | O | X |
| 风扇组装 | X | O | O | O | O | X |
| 电力供应组装 | X | O | O | O | O | X |
| 电池 | O | O | O | O | O | O |

O: 表示该有毒有害物质在该部件所有物质材料中的含量均在 SJ/T11363-2006 标准规定的限量要求以下。

X: 表示该有毒有害物质至少在该部件的某一均质材料中的含量超出 SJ/T11363-2006 标准规定的限量要求。

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